JUNE 23, 1952

NEWS ISSUE

Electrical World

Price 35 Cents

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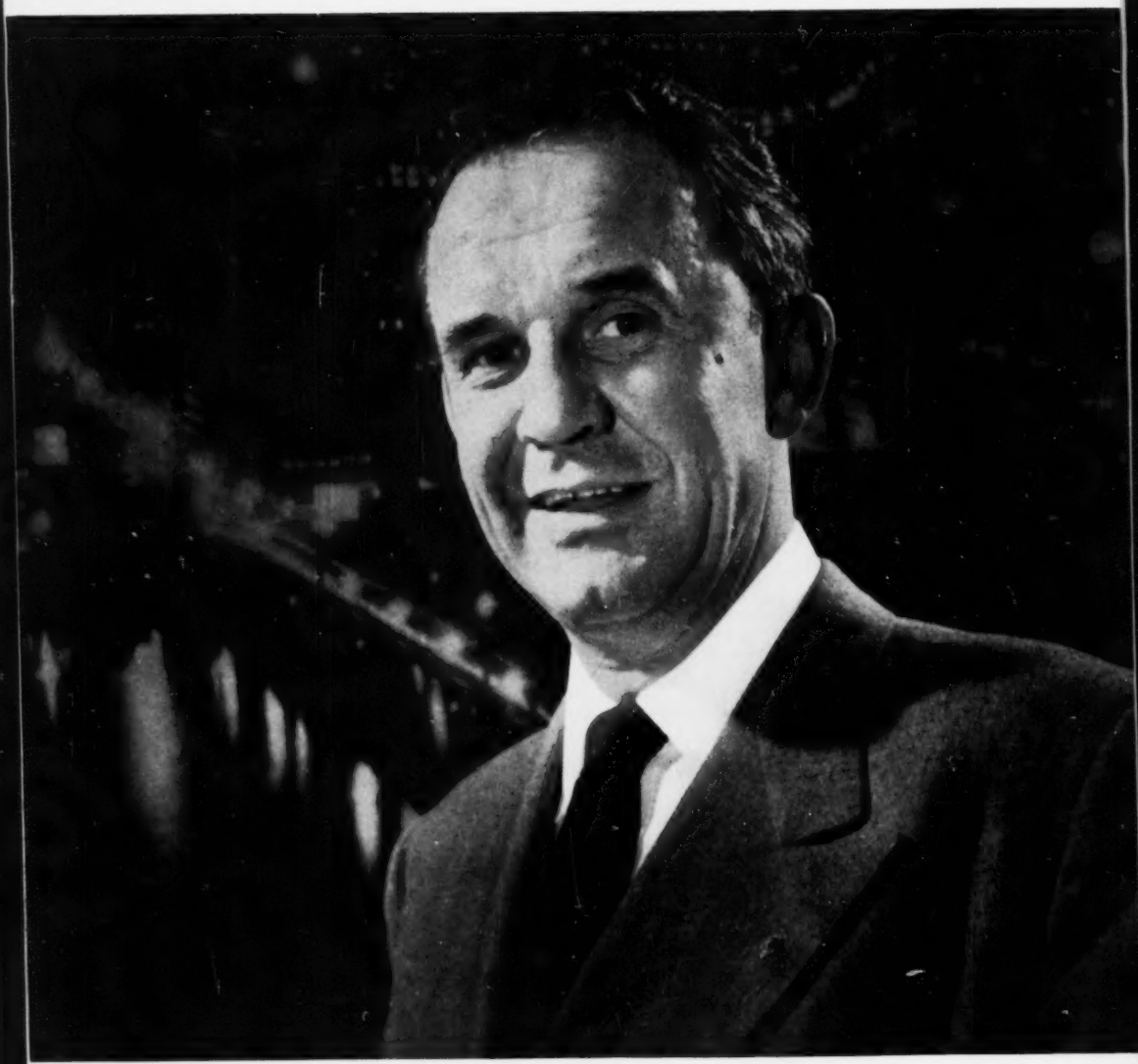


Joseph Schuchert of Duquesne Light wins the McGraw Medal for Cooperation . . . Page 15

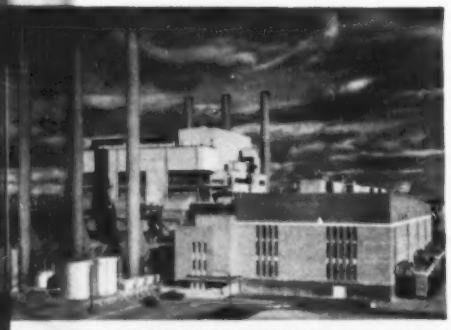
How Do the Candidates Stand on Power? . . . Page 6

Behind the Business Indices . . . Page 50

1951 Winner, Coffin Award

CONGRATULATIONS on a well-merited award are voiced by Philip D. Reed, Chairman, General Electric Board of Directors, as the Charles A. Coffin medal for 1951 is presented to James P. Black, President, Pacific Gas and Electric Company at E.E.I. Convention in Cleveland this month.

PG&E achievement dramatizes vital role of electric utilities in national progress



BILLION-DOLLAR EXPANSION PROGRAM of PG & E has doubled generating capacity in past six years. Contra Costa station above is latest addition in a total of 58 hydro and 17 steam plants.

Citation of the Pacific Gas and Electric Company as 1951 winner of the coveted Charles A. Coffin medal has a special significance for the entire electric utility industry.

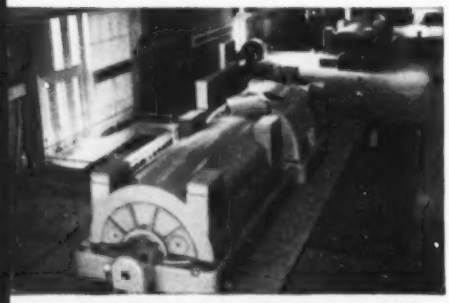
In paying tribute to the exceptional achievements of the PG&E, the award also serves to emphasize the tremendous contributions to community progress and prosperity made by the electric power companies across the nation.

With its spectacular, privately financed, billion-dollar construction program, designed to serve one of the most rapidly developing regions in the country, the Pacific Gas and Electric Company has given convincing proof of the ability and willingness of the electric utility industry to foresee and meet rocketing demands for electric power during the greatest period of national expansion in electrical history.

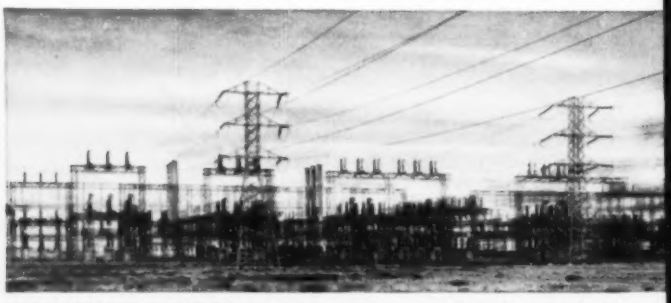
With millions of kilowatts of new generating capacity now being installed, and millions more planned for the years ahead, the electric utility industry will continue to serve, adequately and efficiently, the ever-growing power needs of America. General Electric Company, Schenectady 5, N. Y. 301-203

MORE POWER TO AMERICA

GENERAL ELECTRIC



18 LARGE TURBINES, with a capacity of 1,840,000 kw have been added since the war. Typical examples are G-E turbine generators above at Contra Costa plant, rated 100,000 kw, 3600 rpm, 1300-lb pressure.

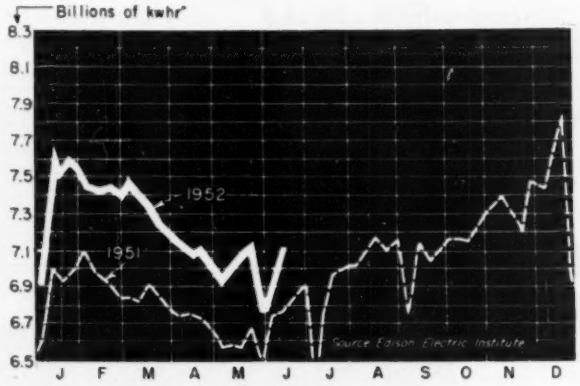


RECORD-BREAKING EXPANSION of transmission and distribution facilities during 1951 included 468 circuit miles of transmission line, 2220 miles of distribution lines and 29 large substations. 23,101 distribution transformers totalling 523,076 kva have been installed. Switchyard at Contra Costa, above, gives some idea of huge scope of construction program.

VOLUME 137, NO. 25

June 23, 1952

Electrical World



Output Week Ended June 14—7,126,404,000 Kwhr

Per Cent Change From Previous Year

	Total US	New Eng.	Mid. Atlan.	Cent. Ind.	West Cent.	South-east	South Cent.	Rocky Mount.	Pacific NW	Pacific SW
June 14	+5.6	+0.1	+2.2	−1.9	+7.7	+14.3	+18.9	+11.8	+7.2	+3.5
June 7	+4.0	+2.2	+1.9	−2.2	+3.3	+13.1	+6.9	+7.0	+4.0	+6.5
May 31	+5.7	+3.6	+3.9	+2.8	+5.0	+14.0	+7.5	+6.4	+2.9	+6.3

Electric Power Statistics

		Latest Month	Preceding Month	Year Ago
Peak Loads (Million Kw)	Mar.	66.5*	66.9	61.4
Capacity (Million Kw)	Apr.	76.74	76.34	70.90
Production (Billion Kwhr)	Apr.	31.51	33.04	29.29
Hydro		9.96	10.44	9.01
Fuel		21.55	22.60	20.28
Fuel Consumption				
Coal (Million Tons)	Apr.	8.05	8.84	7.88
Oil (Million Barrels)		4.20	5.22	4.81
Gas (Billion Cu Ft)		66.50	57.39	58.84
Sales (Billion Kwhr)	Mar.	29.03	29.08	26.77
Residential		8.32	8.51	7.35
Commercial		4.85	4.87	4.44
Industrial		13.98	13.82	13.12
Other		1.87	1.88	1.86
Net Income Class A & B Utilities ($ Million)	Apr.	75.90	82.65	70.64
Estimated Dec. 52 Peak (Million Kw)	Mar.	80.4	80.5	78.2
Kwhr per Residential Customer (12 Month Average)	Feb.	2,037	2,021	1,867
Revenue per Kwhr Residential Service (12 Month Average)	Feb.	2.80¢	2.81¢	2.86¢
Canadian Production (Billion Kwhr)	Mar.	5.22	4.97	4.91

Business Statistics

FRB Industrial Production Index†††	Apr.	214*	217	222
Gross National Product Annual Rate ($ Billion)	1st Qtr.	339.0*	334.6	319.5
E. W. S Industry Production Index	Apr.	124.0*	123.8	122.6
ENR Construction Cost Index††	June	117.8	116.8	113.7
BLS Consumer's Price Index	Apr.	188.7	188.0	184.6
NEMA Insulation Materials, Sales Index†	Apr.	545	536	626
NEMA Electric Appliance Sales Index†	Apr.	221	278	326
NEMA Household Refrig. Sales Index†	Apr.	133	163	242

* Estimated. † 1936=100 †† 1949=100 ††† 1937-39=100 (Unadjusted)

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No. 5
IN A SERIES

AN ENGINEER ASKS —

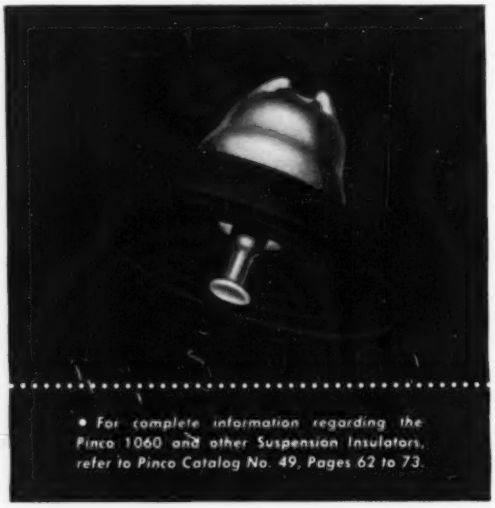
"why, even in severe sleet storms which caused conductor and tower failures, have we never had a mechanical failure with a PINCO 1060?"

HERE'S THE REASON

The answer to this question can be summed up in one statement . . . it is because Pinco Suspension Units are *designed and built to meet service needs* and not just to meet specification requirements. In other words, the correct basic design and rugged construction of Pinco Suspension Units provide extra mechanical and electrical strength for that added margin of safety even under the worst operating conditions.

PINCO SUSPENSION INSULATORS are *better* insulators because—

they are 10% HEAVIER! . . .
at least 20% STRONGER! . . .
and 25% BETTER ON IMPACT TESTS! . . . proof that they are always "RIGHT for the Job" and "RIGHT on the Job." Remember this when you specify and buy suspension insulators.



• For complete information regarding the Pinco 1060 and other Suspension Insulators, refer to Pinco Catalog No. 49, Pages 62 to 73.

PINCO INSULATORS

RIGHT ON THE JOB

The Porcelain Insulator Corporation
LIMA, NEW YORK

Sales Agents:
Joslyn Mfg. & Supply Co.
Offices in
Principal Cities

THE ELECTRICAL WEEK

Featured in This Issue

Taking a look at the record, Electrical World presents views of leading presidential candidates on electric power issues (p 6) . . . Panel of experts discuss use of chemicals for brush control (p 9) . . . J. S. Schuchert is named to receive James H. McGraw Award, Medal for Cooperation (p 15) . . . SEC steps up drive to clean up utility holding company cases (p 16) . . . NAED favors passage of fair trade act (p 18) . . . Security analysts get first-hand look at utility plants (p 22) . . . CIGRE discusses voltage developments (p 32) . . . Caution is urged in reading business indices (p 50).

• • •

Latest from Washington—Ever-changing Securities and Exchange Commission has another vacancy. Commissioner Robert I. Millonzi has quit after a year's service . . . REA co-ops bought $43 million worth of electric power for utility companies in fiscal 1951 compared to $37.5 million in 1950. Average cost per kwhr in 1951 was 0.96¢ compared with 0.99¢ in 1950 . . . Senate confirmation of Chairman Buchanan's reappointment to FPC was running into opposition last week but only real threat appeared to be in the position which would be adopted by the two Republican senators from his home state of Pennsylvania.

Sen. Warren Magnuson, D-Wash., plans to introduce a resolution calling for investigation by FPC into spending by private utilities for "political and other" purposes. He says it has been 16 years since such an inquiry was made, and "it's time it should be done again" . . . Budget Bureau hopes to deliver to White House shortly completed draft of proposed water policy law. Draft bears no resemblance to legislative proposal submitted to President early in 1951 by his Water Resources Policy Commission . . . Congress authorizes building 36,000-kw power plant at Cheatham Dam on Cumberland River in Tennessee . . . House Interior Committee asks Attorney General James McGranery and Comptroller General Lindsay C. Warren for opinions as to whether Bureau of Reclamation violated the law in contracting beyond Congressional authorization of $20.4 million for Eklutna, Alaska, hydro project.

From the West Coast—First controlled circulation boiler in the West, no enclosures except for control room, no cooling tower basin, and 15.5/230-kv transformers with 825-kv BIL and arresters are reasons why Southern California Edison's Etiwanda station of 200,000-kw initial capacity will cost only about $138 per kw of capability.

Net Income for all investor-owned electric light and power companies for first quarter in 1952 totaled $260 million versus $230 million in 1951, EEI reports.

Federal District Court in Wash., D. C., has set Oct. 13 as date for argument of Missouri steam plant case. Issue to be presented is validity of government agency contracts by which REA would loan money for construction of generation and transmission facilities leased to SPA.

Construction—Cincinnati G&E formally dedicates first 100,000-kw unit of 325,000-kw Walter C. Beckjord plant near New Richmond, Ohio . . . Pacific G&E plans to build $10-million, 40,000-kw steam plant at Buhne Point on Humboldt Bay . . . New York State E&G puts into operation 50,000-kw addition to Hickling steam station three months ahead of schedule . . . Central P&L plans to begin building before end of year new steam plant with initial net capability of 66,000 kw to be known as Lon C. Hill station in honor of company's president . . . Cleveland Electric Illuminating buys 413 acres of land in Ashtabula County to be held for resale to industrial concerns interested in moving into the area.

Labor—Richmond, Va., Regional Wage Stabilization Board approves 3.3% wage increase for 2,500 employees of Virginia E&P who are members of IBEW-AFL. Company and union agreed in March to 7% wage hike of which 3.7% went into effect April 1 . . . Chicago Regional Wage Stabilization Board approves 15.6¢ an hour wage hike for IBEW members who work for Commonwealth Edison and Public Service Co of Northern Illinois. Industry members contended 14¢ an hour hike was the most allowed under regulations. Majority of board stated increase was necessary to maintain differentials between job classifications which had previously existed . . . Michigan's Gov G. Mennen Williams fact finding panel board recommends a 14¢ an hour wage increase (11½¢ to March 1 and 2½¢ cost of living adjustment to April 1) for 4,500 Consumers Power employees who are members of UWUA-CIO. Company and UWUA had set a meeting for June 16 to discuss the proposal, but the union asked for a postponement.

Rates—Jamestown, N. Y., Board of Public Utilities adopts proposal to increase rates in Jamestown, Falconer, Celoron and three Town of Ellicott lighting districts by $313,503 annually. Application will soon be filed with New York PSC . . . Maryland PSC denies Consolidated Gas of Baltimore permission to raise its rates temporarily as no "emergency exists." Company, which is seeking 10.4% permanent hike for steam and electricity, asked that raises be authorized on a temporary basis pending determination of its permanent case, contending that proceedings will be long-drawn-out.

Trailer camp residents in Akron area have been overcharged thousands of dollars by some camp owners who resold them power at exorbitant rates, Ohio Edison reveals after weeks of investigating such practices in several counties. Company has threatened to cut off power to those camps which do not cease over-charging.

Citizens Utilities Co plans to continue its diversification and will expand by acquiring additional utilities, including some in states in which the company does not now operate, Pres Richard L. Rosenthal told New York Society of Security Analysts recently.

GEN DWIGHT D. EISENHOWER

"Democracy could be destroyed by creeping paralysis from within."

SEN ROBERT A. TAFT

"I am exploring the possibility of private financing . . . of the St. Lawrence Seaway."

How Does the Next President Stand

Federal power policy for the coming years will be shaped by this year's conventions and elections. While Congress holds the purse strings, it is the President and his cabinet that charts the role the national government will play in the electric power business.

For the first time in 20 years the American people this year stand a chance to see open presidential conventions by both political parties. It is almost certain there will be a new administration, and this will tend to bring in new men at high government levels with different views on power development.

With the first convention just two weeks away, Electrical World has taken a look at the records and speeches of leading Presidential candidates in an effort to assess their stand on electric power issues.

First conclusion: There is no striking cleavage between the two parties on power matters, although the Democrats seem to have a stronger tendency to favor federal participation in electric power development and transmission. Except for two Republicans, the leading candidates have by deeds or talk supported the current federal policy on power development.

Eisenhower Favors St. Lawrence

Except for general approval of the St. Lawrence Seaway Project, Candidate Dwight D. Eisenhower has taken no specific stand on electric power development. Even on this project, he has not discussed the means by which the project would be built.

His speeches put Eisenhower clearly in the Republican ranks against nationalization of industry and centralization of government. He said in 1950, "We have always known that democracy could be destroyed by creeping paralysis from within. Bureaucratic controls, deficit spending, subsidies, and just plain handouts may, in certain emergencies, be required; but their cumulative effect could produce loss of personal initiative and responsibility, lowered production, a stagnated economy, commandeering of property and, finally, dictatorship."

Taft for Private Financing

Philosophy of Republican Sen Robert A. Taft on the government role in power development is fairly well summed up in a comment he made this year on the St. Lawrence: "I'm for it . . . I am exploring the possibility of private financing for the project with tolls paying the way . . ."

Speaking before a rural electric cooperative group last year, the Ohio Senator said, "There is no justification for the loaning of government money which has to be raised from the taxpayer where electric power is available at a fair price . . . as a general proposition in Ohio, private power is available in adequate amount."

Taft's voting record in the Senate reflects this philosophy. He has generally favored reduction of government spending, even though it means deleting somebody's favorite power project. He has consistently voted against government construction of steam power plant facilities for the Tennessee Valley Authority. He has

SEN ESTES KEFAUVER

"More TVA's . . . although not necessarily exact copies."

SEN RICHARD B. RUSSELL

"On public power matters . . . the cold record shows . . ."

on Federal and Private Power?

also taken a voting stand against federal construction of transmission lines.

Kefauver Backs Federal Hydro

There would be expanding federal development of hydroelectric resources under a Democratic administration of Sen Estes Kefauver of Tennessee. In a statement to Electrical World, Kefauver said, "I have always favored the TVA in my own state and favor similar multi-purpose development of our water-power resources—though not necessarily exact copies—in other areas of the U. S.

"Because the investment necessary for the construction of huge multi-purpose projects is beyond the means of private power companies, I believe it is largely a job for the government."

Construction of transmission facilities, Kefauver believes, can be shared between the government and electric companies. But in choosing, he said, the criterion should be which can provide the widest possible and most efficient distribution of generated power.

Like President Truman, Kefauver is willing to use the electric firms as a whipping boy in his election campaign.

Russell's a Project Builder

Although Sen Richard B. Russell is often classed as an economic conservative, probably no other senator has been more effective in obtaining federal power projects for his region.

He was a co-sponsor of the TVA act and has been a key figure in obtaining federal funds for hydro projects in Georgia.

In 1950 Russell was accused by a newspaper columnist of making a deal with northern senators on votes involving a power bill and a civil rights resolution. In a brief speech on the floor, Russell denied trading votes on either the resolution or public power matters. Said he, "The cold record shows that more Southern senators voted" on the power amendment in question than on any other.

As a floor leader, Russell was partially responsible for creation of the Southeastern Power Administration. In the past he has opposed the St. Lawrence Seaway Project, but now generally favors its construction.

Harriman: New Dealer

As roving ambassador for Economic Cooperation Administration, W. Averell Harriman, Democrat, approved a large number of government power projects in the Western European countries. He generally follows the New Deal line and supports river development, probably on an authority basis.

A long-time advocate of the St. Lawrence Seaway, Harriman favors federal development. He has not publicly expressed himself on redevelopment of Niagara Falls power, but two of his most ardent backers have introduced bills in Congress to authorize federal construction and operation.

And Stevenson?

Although Gov Adlai E. Stevenson of Illinois, has officially taken himself out of the Democratic race for presidential nomination, there is still the chance of a "draft." Stevenson is

SEN ROBERT S. KERR

W. AVERELL HARRIMAN

SEN BRIEN McMAHON

probably less federal-power minded than any other of the potential presidential candidates in his party.

Addressing himself to public power matters, Stevenson told a convention in Chicago last spring, "I don't think government should compete with private business." But he had a good word for REA: "I don't know what better argument there could be for the proposition that there is a proper place in our economic scheme for both government action and private enterprise."

Kerr: Fair Dealer

Loud-talking, jovial, oil millionaire Robert S. Kerr, an Oklahoma Democrat, is another federal power advocate and strong Fair Dealer. His Senate votes usually favor full appropriations for federal power projects. He made one of his better-known fights on the Senate floor for Southwestern Power Administration when other senators sought to limit funds available to the agency for purchase of power and lease of transmission facilities. He was largely responsible for negotiation of contracts in Oklahoma by which private companies wheel power from government hydroelectric projects.

Besides fighting for federal appropriations for power projects in his own region, he usually fights against cuts in funds bills which provide power projects for other regions. He supported funds for the Johnsonville steam plant of TVA.

Kerr would not exclude private development of hydroelectric sites, but does think the sites should be fully developed to take advantage of the available resources.

McMahon: Atomic-Minded

Democrat Brien McMahon of Connecticut has shied away from advocating a valley authority for New England, but has favored St. Lawrence Seaway Project, and a number of other hydroelectric projects for his region.

In the Senate, he has also supported fairly consistently all appropriations for federal power development and federal transmision of power. But as chairman of the Joint Congressional Committee on Atomic Energy, he has also approved large-scale participation of electric companies in supplying atomic plant loads.

In this position, he has also favored cooperative research efforts which would give private industry a share in developing a nuclear-fueled power plant.

GOV ADLAI STEVENSON

GOV EARL WARREN

Warren's a GOP Liberal

Back on the Republican side, Gov Earl Warren of California has supported public power strongly.

"I believe," he says, "that power should be developed privately wherever private industry has the resources, the ability and the desire to do so." But, he adds, federal, state or local development is entirely proper as an incident to water conservation. And in these instances, he believes, the "preference clause" concept should be followed.

About the St. Lawrence project, he says, "I cannot understand why the Great Lakes-St. Lawrence Seaway has not been built long before this." He thinks river basins should be developed by the states on a cooperative basis, where that is possible.

PANEL DISCUSSION on the use of insecticides and herbicides is conducted by Dr K. C. Barron at Outdoor Writers Association meeting. Participants (left to right) are Larry Cook, Dr David G. Hall, Dr Arnold C. Haugen, Barron, Dr Arne Carlson, H. P. Davis, and K. E. Crawford

Chemicals for Brush Control . . .

. . . debated by Outdoor Writers group. Committee will be set up to study herbicides and insecticides

Indiscriminate use of insecticides and herbicides in the eradication of weeds and woody growth along utility rights-of-way and along highways has drawn the criticism of the Outdoor Writers Association of America.

Meeting in Miami recently, the organization adopted a resolution to set up a permanent committee to consult with chemical manufacturers and insecticide and herbicide dealers on the use of such chemicals, and to keep OWAA informed on developments.

Panel Discussion . . . The action was the outgrowth of a panel discussion on the dangers of herbicides and insecticides to wildlife, vegetation, and waters. Included on the panel were: Kenneth Crawford and Larry Cook, OWAA; Dr K. C. Barron, Dow Chemical Co; Dr David Hall, U. S. Department of Agriculture; Dr Arnold Haugen, Alabama Wildlife Cooperative Research Unit; Dr. Arne Carlson, Grasselli Chemicals Division, E. I. duPont de Nemours & Co; and Henry Davis, Remington Arms Co.

The panel declared that use of insecticides and herbicides is an economic function, but recommended that they be applied according to recommended practices. It was shown that chemicals, when properly applied, do not injure wildlife, and that underbrush destroyed along utility lines is quickly replaced by grass and other low-growing plants which provide adequate cover for game.

Herbicides Safe . . . Dr Carlson pointed out the necessity for control of obstructing brush, which at present is best accomplished through herbicides. "As used today," he said, "these herbicides do not scorch the earth in the manner in which they have been accused."

Discussing the application of herbicides, Dr Carlson stated there are specific uses for and ways to control 2,4-D and 2,4,5-T, as well as ammate. He urged following directions in the use of each.

Dr Barron emphasized that 2,4-D and 2,4,5-T are not toxic to man, animals, birds or fish, and are unstable in soils. Some injury to bordering crops has resulted from spraying, he said, but control is possible with proper application.

Economy Cited . . . The economical nature of herbicides was indicated by Dr Barron. He cited the case of Detroit Edison Co which reduced maintenance costs from $300 to $30 a mile.

Dr Haugen said repeated heavy spraying of insecticides can be injurious to wildlife. If washed down by heavy rains, they will leave waters toxic for weeks, he said. He stressed he had not found any instance in which herbicides were detrimental to wildlife.

Advertising Groups Hit Truman Stand on Ads

Advertising groups have reacted strongly to President Truman's recent attack on private power companies for discussing public issues in their advertisements (EW, June 2, p 70). The Advertising Federation of America registered its disapproval by passing a resolution censuring the President and has been joined by a number of local associations in calling on members to petition Congress to defeat governmental efforts to curtail institutional ads.

The AFA resolution was adopted at the association's annual convention. It was introduced by Henry Obermeyer, vice president of Bozell & Jacobs, counsel for the Electric Companies Public Information Program.

The resolution asserts that freedom of advertising is necessary to the preservation of our democratic system and that ads in which a company presents its case to the public are "vital to preserve our American heritage and freedom of speech and press. . . ."

Members of the AFA were urged "to petition their representatives in Congress to use every remedy at their command to defeat any effort whatsoever to curtail or restrain legitimate use of advertising by any American citizen, business, or industry."

Responding quickly to the AFA plea was the Oklahoma City Advertising Club. The club circulated a letter to members of Congress, chambers of commerce, and advertising clubs outlining its disapproval of the Truman outburst against utility advertising and defending the right of business to express its views through ads.

In a resolution similar to the one adopted by AFA, the Advertising Club of Shreveport also took the President to task, called for the advertising profession to present a united defense of rights of business to use ads to inform the public about its problems, and urged members to ask their Congressmen to oppose restrictions on institutional ads.

IN THE INDUSTRY

The week of Sept 7-13—does that mean anything to you? This is the week that industry will celebrate Production for Freedom Week. This project, sponsored by the Electric Companies Public Information Program, has a four-fold aim:

1. To inform the people that America has reached a position of world leadership in preservation of world peace through the unimpeded genius of the American people.

2. To emphasize the major role in production played by electric power.

3. To inform the public that the private companies will have enough capacity to serve their areas provided their equipment suppliers can get sufficient materials.

4. To dramatize the development of modern tools of production, especially those using electricity, which have been responsible for the high productivity of the average American worker and in turn for his high standard of living.

No one in the industry should find fault with these goals. If the industry can bring these four points to the public it will have done much to improve its position with them. But with the week less than three months away what is the industry planning to do that week? What plans do individual companies (and the success of the week depends on them) have to promote themselves and the industry?

To get the answers to these questions Electrical World checked with a number of companies. All are members of PIP. Here is what they told EW:

Company A—"We're thinking about it but haven't done anything definite."

Company B—"Not quite sure yet. We are going to do something. But we work on a week-to-week basis. I have been pretty busy."

Company C—"Not prepared to answer yet. We expect to do an extensive job. We did one last year on farm electrification."

Company D—"What are we supposed to do? We're supposed to cooperate. We'll cooperate if they'll tell us how."

Company E—"It's too early to say. We will probably release one or two news items to the papers and will mention the week in our house organ. We may even run an ad in papers in our area. We will sponsor no meeting, no parade, or no banquet as we consider our territory too large for this."

Company F—"We have given information on the project to state wire associations. Local representatives have contacted the newspapers in their districts. The governor and all mayors will be asked to proclaim the week. Service clubs and chambers of commerce will be asked to sponsor programs. We will run ads and set up window displays."

Company G—"Do not know what we will do if anything."

These answers indicate that the industry has much to do to make this week a success. It must be remembered that the U. S. Chamber of Commerce has endorsed the program and recommended it to all local chambers throughout the country. As Electrical World warned (May 5, p 74), "If the electric companies do not work closely with the chamber secretaries, Production for Freedom Week may end up being a week of tribute to the steel, aircraft, or the meat industry." This would be regretable because no industry other than the electric utility has so much to gain by publicizing the aims of this great program.

TECHNICAL NOTES

ARCHER E. KNOWLTON

Power saws accelerate the clearing of fallen trees and limbs so lines can be restored.

Series capacitors are accepted tools for transmission and high voltage feeders—maybe they could be made to smooth out the wrinkles impressed on lower voltage distribution by air conditioners, welders, small furnaces, etc.

Switching has gotten to be the objective for about half the shunt capacitors now being bought.

Dead-ending on pole or arms is more secure than dead-ending on pins.

Two subsurface water supplies (aquifers) are fortunate for any community engaging in air conditioning, especially if they are at different intrinsic temperature. Use the warmer in winter and return it to the colder. In summer vice versa. Earth heat storage, no waste of water.

Flywheels on pulverizer motors prolong the fuel supply and flame from 4 or 5 to 20 or more seconds to ride through a loss or momentary dip of auxiliary voltage.

Runaway speed of Kaplan turbines is in general 2.5 to 3 times normal while that of Francis turbines is rarely over 2 times normal. Limiting the speed blade pitch to a 16½ degree minimum greatly reduces "off cam" runaway speed.

Overlays of stainless steel with uncoated rod can be made faster, at less cost and with smoother finish by using an inert gas envelope (argon or helium).

Generators have apparently been unharmed by short-circuit of longer duration than sanctioned by manufacturers' recommendation. Facts are lacking to resolve the difference.

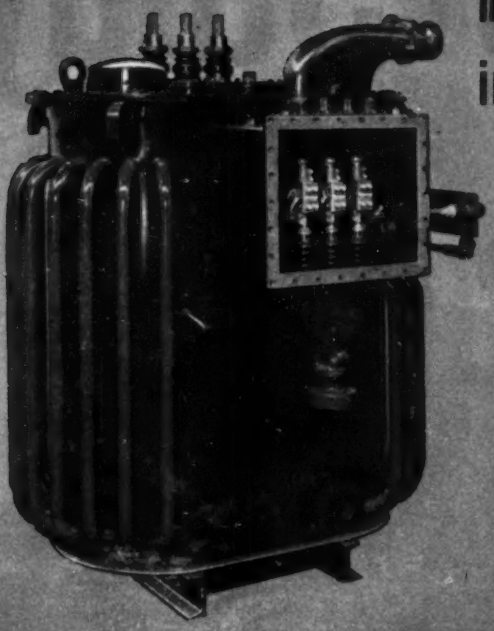
Reduced short-circuit ratio might lower the price of a generator but not the real cost if the protective system has to be elaborated to offset its lessened fault capability.

Reliable leased line service for relaying and telemetering should not be beyond the capabilities of communication systems nor beyond the "reach" of power systems dollar-wise.

Wind-tunnel loads are large and intermittent but can be handled up to 10% of system peak if dispatching is mutual and collaborative.

TRANSFORMER OPERATOR'S QUIZ:

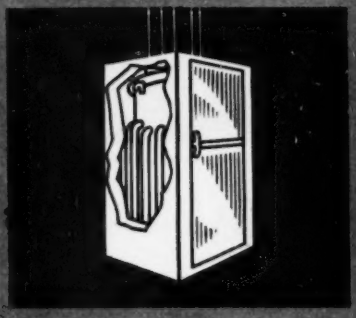
How do KUHLMAN SAF-T-KUHL transformers help save money in industrial installations?



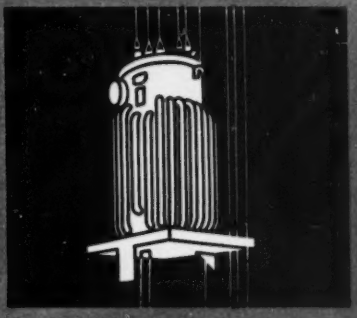
Kuhlman Saf-T-Kuhl transformers are filled with an inert, non-inflammable, non-explosive liquid that makes them absolutely safe. They can be installed anywhere in the plant without expensive fireproof vaults or enclosures of any kind. Savings on installation costs alone are substantial. Saf-T-Kuhls can even be installed at load centers, thereby reducing power losses and improving voltage regulation considerably.

In addition to Saf-T-Kuhls, Kuhlman has made a great many other improvements in the design and performance of transformers and equipment. The Bent Iron Core, the Quick-Grip bushing, oil-impregnated transformer coils, silicone insulation, and the forerunner of the modern street lighting transformer, are all Kuhlman developments. Today, Kuhlman transformers are the most copied transformers in the electrical industry. Bulletin CS-501 gives further facts about Saf-T-Kuhls.

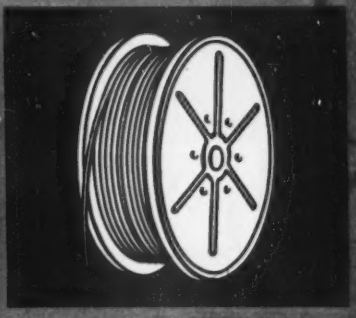
SAF-T-KUHL'S three major savings



SAVES MONEY • In many states, insurance rates are lower with Saf-T-Kuhls because of the recognized safety factor. Maintenance costs are also lower because the cooling liquid will not form sludge.



SAVE SPACE • Saf-T-Kuhls can be installed anywhere in the plant—below floor level, at floor level or well above the floor near the ceiling—with perfect safety, thus saving floor space for production.



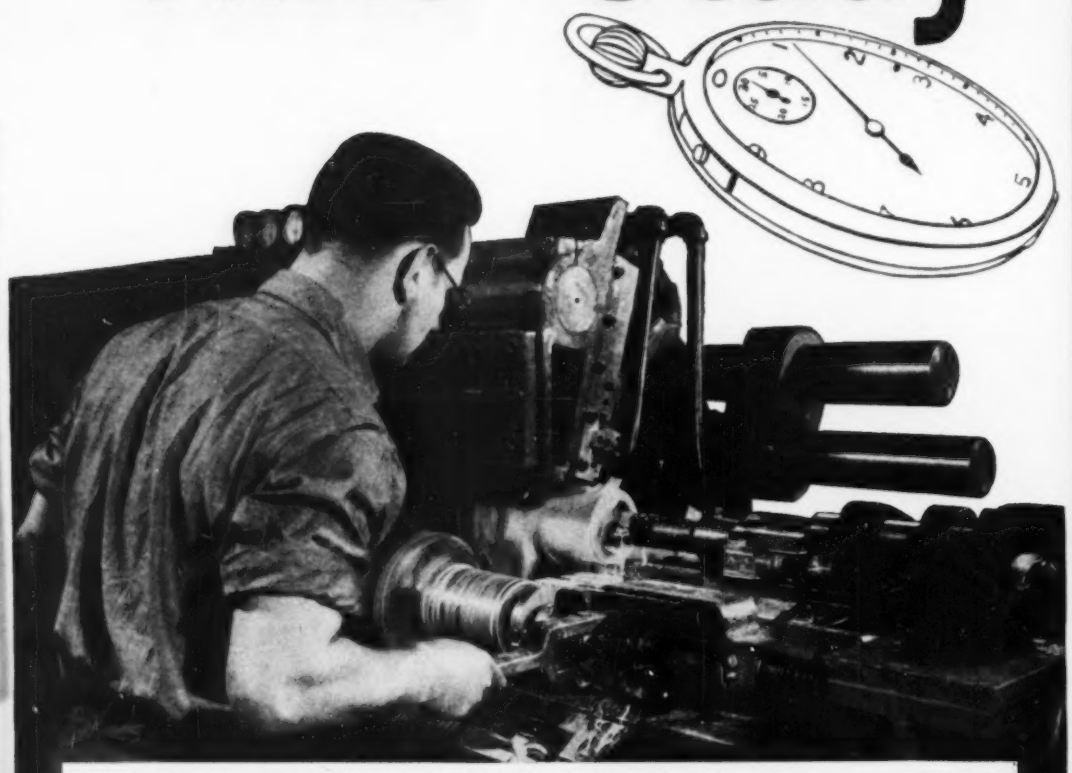
SAVE COPPER • When you use Saf-T-Kuhls, electrical circuits can be divided into several sections with a transformer in the center of each, thus eliminating the expense of running long, large copper conductors for secondary line.

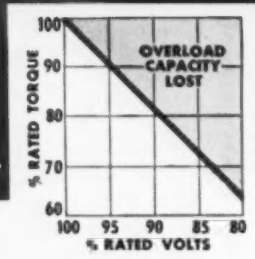
Kuhlman ELECTRIC COMPANY, BAY CITY, MICHIGAN

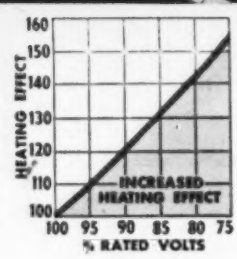
A great name in transformers. Write for descriptive bulletins on Kuhlman power, distribution, dry type, Saf-T-Kuhl and specialty units.

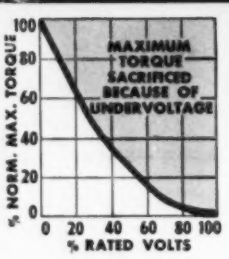
EXPORT REPRESENTATIVES: *International Standard Electric Corporation,* 67 Broad Street, New York 4, N. Y. Cable Address, Microphone, N. Y.

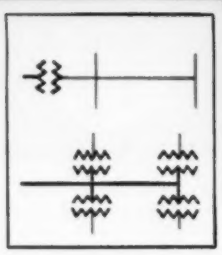
Time-Study











FULL PRODUCTION demands that rated voltage be maintained to all motors. Overload capacity, that extra push necessary for short intervals on many processes, falls off rapidly on undervoltage . . . falls approximately 10% for every 5% drop below rated voltage.

MOTORS BURN OUT quicker at undervoltage because of increased heating effect. Overload relays in the controls protecting your motors trip because of the extra current through them, open circuits to motors — cause machine down-time and production loss.

JOBS TAKE LONGER because torque and horsepower drop when voltage drops. Less torque means lighter cuts on lathes, shapers and other machine tools. More time must be spent to get the same job done. More overhead, more manhours must be figured into every job.

A MAJOR CAUSE of undervoltage is voltage drop in secondary feeders. Existing systems may not be adequate for new production schedules. Install A-C Substations at load centers to reduce line losses, cut feeder length, hold proper voltage, increase production.

Your Voltage

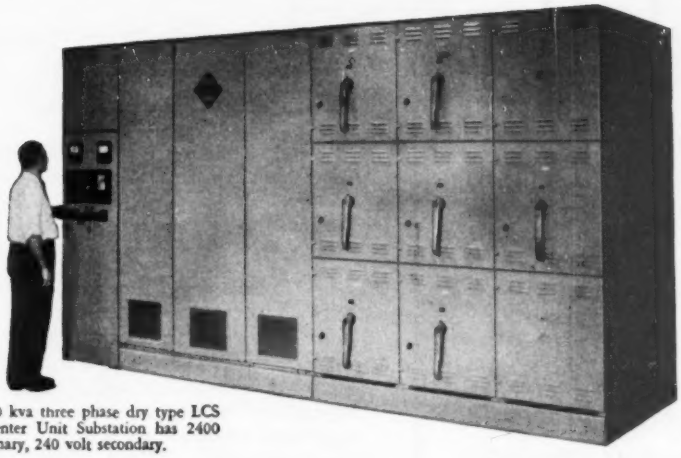
STOP WASTING MANHOURS on slow producing machines. Get the most from the production equipment in your plant by installing unit substations to correct undervoltage. No electrical equipment gives top performance *unless* it operates at rated voltage . . . and even well designed distribution systems may prove inadequate because of today's added loads and increased production schedules.

For example, if your squirrel-cage motors operate at 10% undervoltage, maximum torque available to start machinery is reduced 19% . . . heating effect within the motors is inceased 21% . . . overload capacity falls, efficiency drops.

Increase your output by eliminating production slow-downs resulting from overloaded motors . . . machine down-time due to tripped starters or circuit breakers. Install Allis-Chalmers LCS Unit Substations at load centers and eliminate excessive line drop by shortening low voltage cables. Allis-Chalmers LCS Load Center Unit Substations are neat, compact, easy to install, and provide protection to personnel.

You can count on the cooperation of experienced Allis-Chalmers substation engineers in working out your distribution system. Get in touch with your A-C representative, or write Allis-Chalmers, Milwaukee 1, Wisconsin. Ask for bulletins 11B6285A, 11B6325B and 11B6895. A-3371

LCS Unit Substation



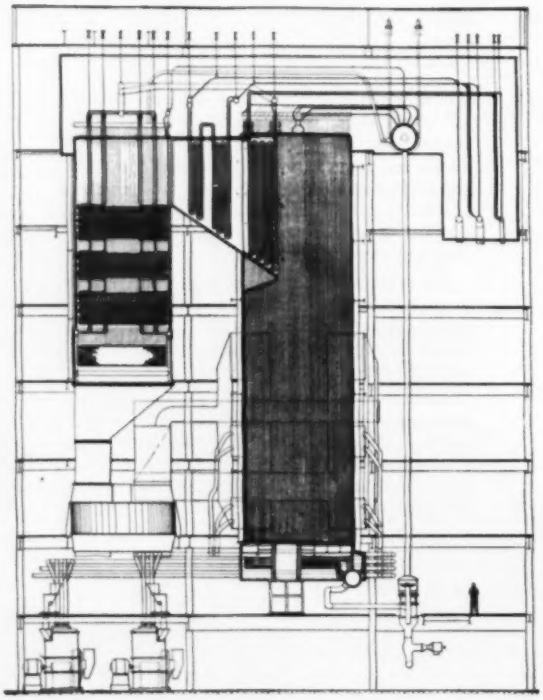
This 750 kva three phase dry type LCS Load Center Unit Substation has 2400 volt primary, 240 volt secondary.

ALLIS-CHALMERS

KEARNY GENERATING STATION

Public Service Electric and Gas Company

C-E controlled circulation boilers



The C-E Unit shown above is one of two duplicate units presently under construction at the Kearny Generating Station of the Public Service Electric and Gas Company at Kearny, New Jersey. Construction work for the new capacity is being performed by United Engineers & Constructors Inc.

Each of these units is designed to serve a 145,000 kw turbine-generator operating at a throttle pressure of 2350 psi with a primary steam temperature of 1100 F, reheated to 1050 F.

These units are of the controlled-circulation, radiant type with a reheater section located between the primary and secondary superheater surfaces. An economizer section follows the rear superheater section and regenerative type air heaters follow the economizer surface.

Pulverized coal firing is employed, using bowl mills and tilting, tangential burners. Arrangements are made to use oil and/or natural gas as alternate fuels.

C-E

COMBUSTION ENGINEERING—SUPERHEATER, INC.

200 Madison Avenue, New York 16, N. Y.

B-589

ALL TYPES OF BOILERS, FURNACES, PULVERIZED FUEL SYSTEMS AND STOKERS; ALSO SUPERHEATERS, ECONOMIZERS AND AIR HEATERS

Schuchert Gets McGraw Award

Medal for Cooperation given to Duquesne Light's manager of lighting sales for work on Planned Lighting Program

(Cover Story)

Joseph S. Schuchert, manager of lighting sales for Duquesne Light Co, Pittsburgh, has been nominated to receive the James H. McGraw Award, Medal for Cooperation, for his nationally recognized work on the Planned Lighting Program.

The presentation will take place at a dinner sponsored by the Electric League of Western Pennsylvania and the Duquesne Light Company at the Duquesne Club in Pittsburgh on June 30.

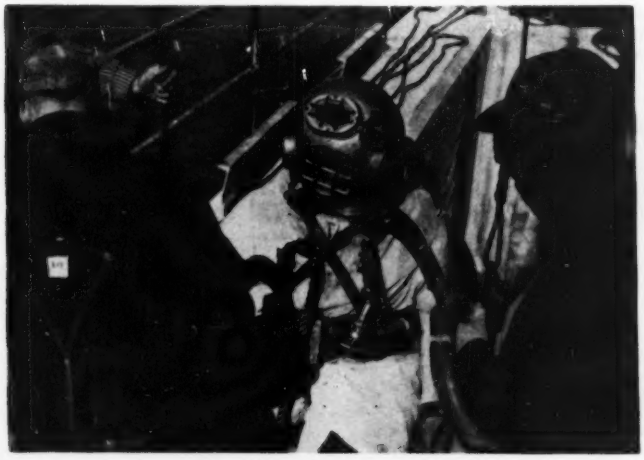
Schuchert began working with Duquesne Light in 1925 as an apprentice engineer. He later became power sales engineer, supervisor of architects and builders' service, supervisor of lighting sales, and director of wiring and lighting sales. He was named general manager of the Equitable Sales Company, a merchandising affiliate, in 1939, and three years later was appointed manager of commercial sales for Duquesne Light, the position he currently holds.

Schuchert has been prominent in educational and fraternity work at Carnegie Institute of Technology, of which he is a graduate.

He is a member of the Electric League of Western Pennsylvania, Pennsylvania Society of Professional Engineers, Engineers Society of Western Pennsylvania, Edison Electric Institute, Illuminating Engineering Society, Better Light-Better Sight Bureau, and Pennsylvania Electric Association.

Judges who recommended him for the award were: L. K. Comstock, L. K. Comstock & Co; H. P. Leveridge, Philadelphia Electric Co; A. H. Nicoll, Graybar Electric Co; C. E. Swartzbaugh, Swartzbaugh Mfg Co; William T. Stuart, editor, "Electrical Construction and Maintenance"; and Alice McMullen, associate editor of EC&M.

The award is one of four established in 1925 by James H. McGraw to honor persons who have made exceptional personal contributions in the electrical field. Each consists of a bronze medal and a purse of $100.



Diving for Stones in Idaho

Diving equipment, rarely seen in Idaho, was imported for a specific job at Idaho Power Co's C. J. Strike development. Diver is W. B. Guinen of the Montana Power & Light Co, loaned to Idaho Power to help clear an obstruction of stones from No. 3 Gate Slot. The work was done 43 ft under water. The 90,000-kw Strike development is Idaho Power's newest plant.

Seaway Bill Killed

Senate votes to send measure back to Foreign Relations Committee for further study

The Senate voted last week, 43 to 40, to pigeonhole the St. Lawrence Seaway and power project bill by sending it back to the Foreign Relations Committee for further study. The action kills the bill for this session.

Motion to recommit the measure was made by Sen Herbert H. O'Conor (D-Md) who called the waterway and power development an "expensive and uneconomic project."

One new approach to the Seaway came up earlier in the Senate: an amendment to provide private financing of U. S. share of the project.

This was offered by Vermont Republican George D. Aiken. He proposed creation of a special corporation with authority to issue government-backed bonds for construction of the seaway.

No Provision for Power . . . U. S. share of the proposed project is now estimated at $566 million, but the Aiken proposal would allow the corporation to issue bonds totalling only $485 million. Thus the electric power features of the project would have to be financed by some other means.

Several senators expressed the opinion New York State would acquire and operate the 940,000-kw power plant to be built with the seaway.

An amendment sponsored by Sen Everett Dirksen (R-Ill.) called for creation of a seven-man commission to make a one-year study of the project. This would be a substitute for the pending measure which calls for straightout approval of the present project.

SEC Cleaning Up Utility Holding Cases

Under a new chairman, public utilities division aims to reduce systems from 28 to 16

Clean up the Section 11 holding company cases! This is the new directive under which Jerome S. Katzin, chairman of the public utilities division of the Securities and Exchange Commission, will be working when he takes office July 1st. Behind the stepped-up drive is SEC Chairman Donald D. Cook.

Section 11 of the 1935 Holding Company Act authorized SEC to bring about geographical integration and financial and corporate simplification of public utility holding company systems.

What Cook and Katzin are shooting at in the utility field is illustrated in the adjoining map. Today there are 28 electric utility holding company systems under SEC's regulatory jurisdiction. Without pre-judging any specific case, SEC officials believe there will be only about 16 such systems when their job is completed.

Although he has not stated it publicly, Cook's goal is to conclude the Section 11 cases before he relinquishes his chairmanship. He made this clear in appointing Katzin, whose orders are "to press with all diligence an accelerated program for prompt disposition of the remaining problems under Section 11. . . ."

Actually, SEC has already come a long way in this job. When it really got going about 1940, there were 72 or 73 top electric holding company systems. At the top were 15 which controlled 80% of all power generation in the land. Twenty controlled 98.5% of all transmission across state lines.

At the start of this year, SEC had 15 major reorganizations pending. When these are concluded, the systems will probably closely resemble those shown on the map. It is estimated that the companies which will be allowed to remain as registered holding systems have assets of around $5 billion.

More than 80% of the work contemplated in 1935 already has been finished. But some of the most ticklish problems still remain. Morton E. Yohalem, outgoing head of SEC's utilities division, puts it this way: "It takes just as long to peel the last potato in the barrel as it does to peel the first one, and sometimes it takes a little longer."

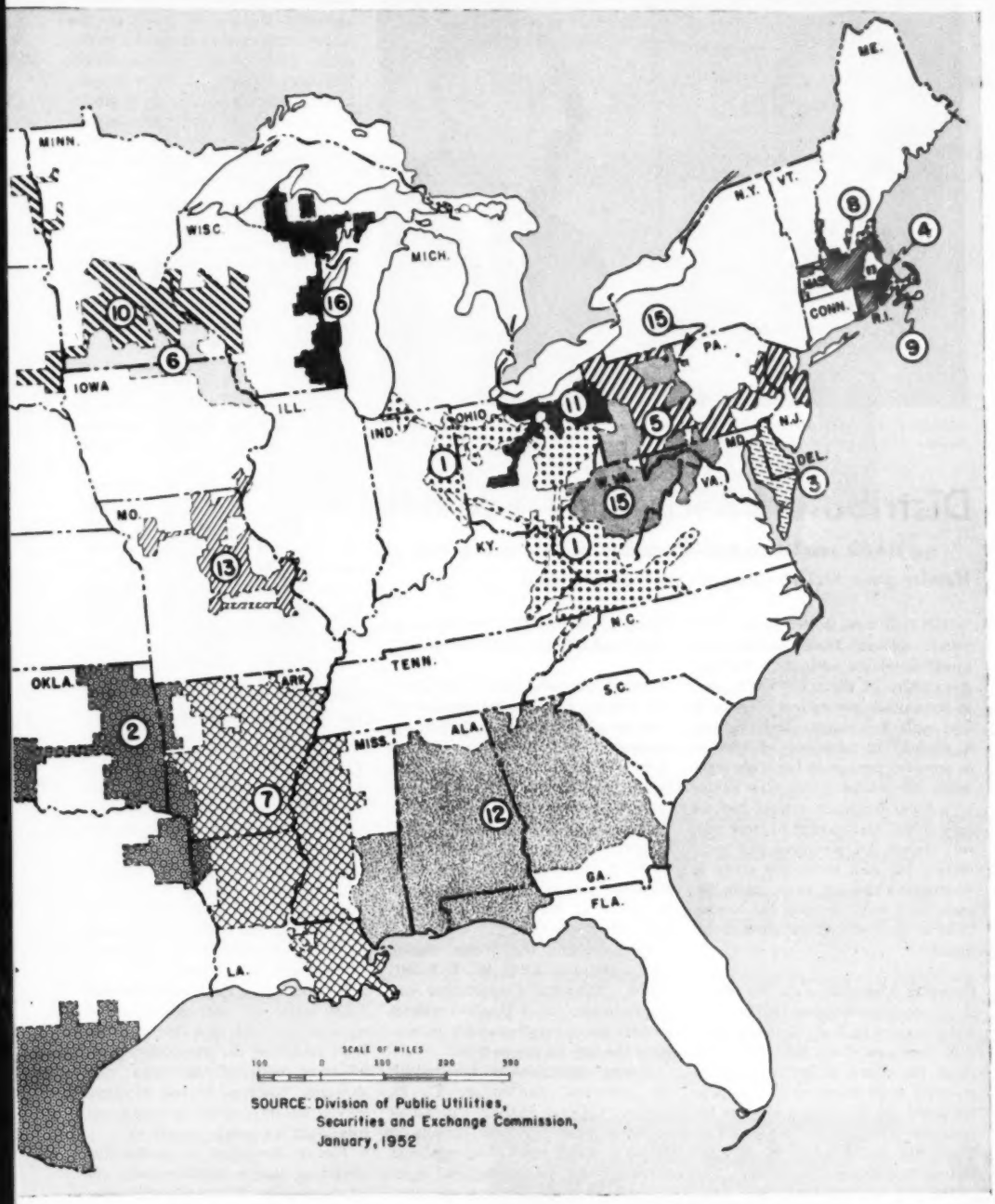
Systems on the Map →

1. American Gas & Electric Co
2. Central & South West Corp
3. Delaware Power & Light Co
4. Eastern Utilities Association
5. General Public Utilities Corp
6. Interstate Power Co
7. Middle South Utilities, Inc
8. New England Electric System
9. New England Gas & Electric Association
10. Northern States Power Co (Minn)
11. Ohio Edison Co
12. The Southern Co
13. Union Electric Co of Missouri
14. Utah Power & Light Co
15. West Penn Electric Co
16. Wisconsin Electric Power Co

16 Utility Holding Systems . . .

. . . expected to remain operative after SEC ends its consolidation plans are shown in this map prepared by the commission

Under the 1935 Act



SOURCE: Division of Public Utilities, Securities and Exchange Commission, January, 1952

NOTE: Map shows approximate electric utility service areas only. Effect has been given only to those dispositions of properties which have been ordered by SEC pursuant to Section 11. The map should not be construed as an expression of opinion or judgment by the commission as to the ultimate solution of any residual problems which may require determination under Section 11

GEORGE F. HESSLER, Graybar Electric Co, right, receives Distributors Medal, James H. McGraw Award from W. T. Stuart, editor of "Electrical Construction and Maintenance"

Distributors Back Fair Trade Bill

NAED resolution favors passage of law; new president Hessler given McGraw Award Distributors Medal

"Let's not have Brown Shirts at our backs," Federal Trade Commissioner Lowell B. Mason advised the National Association of Electrical Distributors at its annual convention in Atlantic City early this month. Implying that it wouldn't be advisable for business to press for passage of fair trade legislation, he said:

"I think the manufacturer has the right to sell his products to those who will respect his merchandising techniques, but he'd better not come to Washington and ask us to do it, because he'll wake up with the helping hand of government too close to his throat."

Opposing Viewpoint . . . An aggressively opposite viewpoint on fair trade was expressed by B. A. Graham, president, Sunbeam Corp, who related in detail the efforts of his company to maintain fixed prices on its products. He urged the distributors to press for favorable action on the Maguire Fair Trade Bill in the Senate by personal talks with their senators.

That the association favored Graham's view was apparent in a resolution passed at the convention in favor of fair trade legislation. Another resolution asked that OPS restrictions be lifted and the agency be disbanded.

Hessler Honored . . . As a sidelight to the business sessions, the association's new president, George F. Hessler, was presented the Distributors Medal, James H. McGraw Award for Electrical Men. Hessler, who is vice president of Graybar Electric Co, received the citation in recognition of his constructive contributions toward coordinating the functions and services of the electrical distribution industry with the needs of the government during the current emergency.

In presenting the bronze medal, plus a purse of $100, W. T. Stuart, editor, "Electrical Construction and Maintenance," cited Hessler's persuasive talents and statesmanship in handling the task he has at hand.

During discussions of the outlook for electrical distribution, E. D. Stryker, General Electric Co, Lamp Division, said that the consuming public is ready and willing to accept better lighting. In industry and in retail trade there is a growing awareness of the values of better lighting, and in the residential field the market is expanding rapidly, he said.

Laundry Appliances . . . The laundry appliance business is poised for its move to the forefront of the white goods field, asserted Elisha Gray, Whirlpool Corp. Every factor is right, he said. The public is eager to accept the product in relative preference to other lines.

In reference to the ills of the radio, TV, and appliance industry, Benjamin Gross, chairman of NAED's Appliance Division, quoted "Electrical Merchandising" as saying that many manufacturer and distributor policies have actually done more to foster price-cutting and, as a by-product, poor selling effort at the retail level, than any other cause. All the pleas for more creative selling by the dealer and his salesmen will continue to go unheeded, he added, if the dealer, faced with competition from his own suppliers, is not permitted to make an honest dollar.

In addition to Hessler, NAED's new officers are L. E. Barrett, president, Barrett Electric Supply Co, St. Louis, vice president and chairman of Apparatus and Supply Division; and Gross, president, Gross Distributors, Inc, vice president and chairman of the Appliance Division.

Chicago Area Blacked Out by Transformer Failure

Failure of 260,000-kva three-phase 138-69-12-kv transformer in the substation at Commonwealth Edison Co's Northwest Station started a series of events that plunged a large portion of Chicago's North Side in darkness from 3:40 p.m. to 8:00 p.m. on Saturday, June 14.

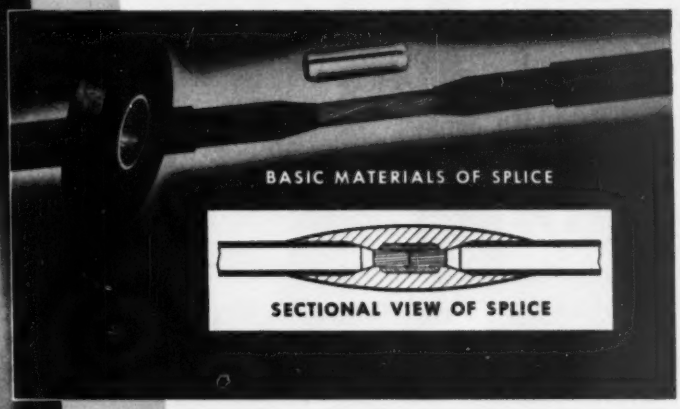
An area five miles by eight miles was affected. Service was interrupted to seven substations in the area. Damage was put at $200,000.

Pressure inside the transformer that failed blew off the vent and oil squirted out and over the concrete walls separating the transformer from adjoining units of the same size, damaging bushings on two of these. Service was interrupted on three transformers in the group.

Trouble developed so rapidly that service to station auxiliaries was cut off causing the three units that were operating at Northwest Station to go out of service. Total capacity of the three units was 115,000 kva.

Rome RoZone®

Superior Ozone-Resistant Insulation Deserves Your CONFIDENCE



What its Ease of Installation Means to You

Q: Where can RoZone insulated cable be installed?

A: It is successfully installed in any location, whether direct in earth, in conduit, in racks, overhead or in combination runs.

Q: How is RoZone spliced and terminated?

A: Splicing and terminating can be accomplished by simple manual methods that have been time proven—require little experience. No potheads are necessary. It is easy to strip, clean to handle.

Q: Why are fewer splices required with RoZone?

A: It can be manufactured in longer lengths and its light weight makes it possible to pull these lengths easily. As a nonmetallic sheathed cable, it does not require special lubricants.

Q: Can RoZone be joined to other types of cables?

A: Yes. By proper splicing techniques, RoZone may be joined to most other types of cable.

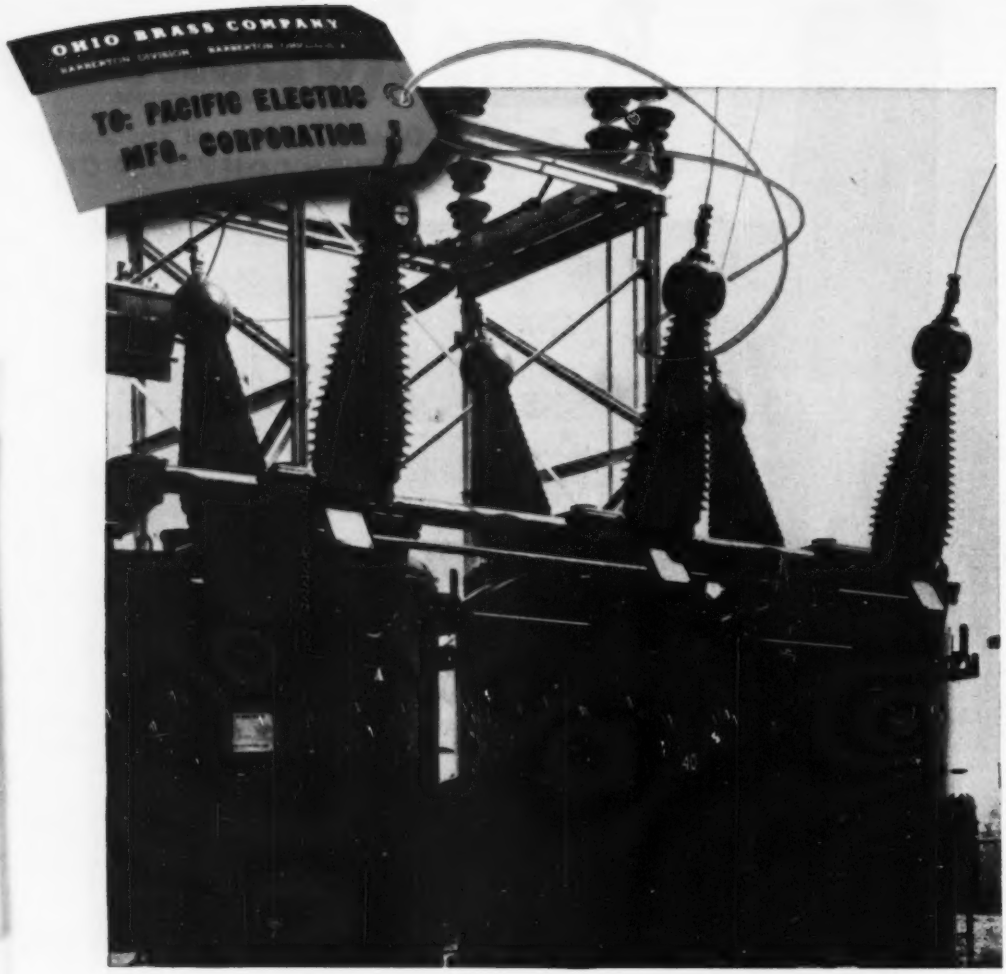
Ease of installation, combined with exceptional resistance to aging, corona, and ozone cutting plus low dielectric loss and excellent electrical stability in water, is why RoZone deserves your confidence. For complete information, send for the Rome Power and Control Cable Catalog.

It Costs Less to Buy the Best

RoZone is approved and accepted by leading utilities, industrials and consulting engineers

ROME CABLE
Corporation
ROME • NEW YORK
and
TORRANCE • CALIFORNIA

ROME CABLE ROME, N.Y.



One of several 5-cycle high-speed reclosing 138-kv oil circuit breakers supplied to a leading Midwest utility by the Pacific Electric Mfg. Corporation. According to its builder..."the entrance bushings of these circuit breakers are subjected to minimum mechanical impact at closing because the stationary contact structures are of the nested sliding-shoe (finger) type. In the closed position the bushings are not subjected to the forces of kick-off or bumper springs because all operating forces are applied external to the tanks. Other Pacific features include maximum simplicity of interrupter design, only one moving part in each tank," . . . And

O-B BUSHINGS

ONE OF THE FINEST COMPONENTS OF ANY CIRCUIT BREAKER

Ohio Brass

MANSFIELD · OHIO

4129-H

Atomic Energy Institute Set . . .

. . . for June 26-28 at University of Michigan. Hafstad, AEC director, and Cisler, Detroit Edison president, will speak

The industrial and legal problems of atomic energy will be discussed and analyzed at the Atomic Energy Institute sponsored by the Law School of the University of Michigan. Scheduled for June 26-28, the institute will be presented at Ann Arbor in cooperation with the Michigan Memorial-Phoenix Project.

Private use . . . Potential use of atomic energy by private enterprise is slated for discussion at the institute's opening session Thursday, June 26. At this session Dr Lawrence R. Hafstad, director, Division of Reactor Development of the Atomic Energy Commission, will talk about nuclear reactor developments.

Walker L. Cisler, president of Detroit Edison Co, will speak at the session on private capital for nuclear power. In his talk Cisler will treat the role played by utilities.

With the permission of the Atomic Energy Commission, Detroit Edison, in cooperation with Dow Chemical Co, has recently undertaken stage two in a study of the feasibility of private enterprise using nuclear reactors to produce electricity.

Edwin J. Putzell, Jr, secretary of Monsanto Chemical Co, will take part in a session on chemical companies and nuclear power. Monsanto Chemical has had extensive experience as a contractor to the AEC and is also studying the feasibility of nuclear reactors for private power.

Federal Controls . . . Government controls over atomic energy utilization are also slated for discussion. Participating in this session will be Casper W. Ooms, of Dawson & Ooms, Chicago, and chairman of the Patent Compensation Board of AEC, who will talk about patent policies.

A panel session on control of private development of atomic energy will be moderated by Bennett Boskey, of Volpe & Boskey, Washington, D. C., and a former deputy general counsel of AEC. This session will be devoted to discussions of the controls and limitations imposed upon private enterprise development of atomic energy by the Atomic Energy Act of 1946.

W. L. CISLER

Canadian experience in the atomic energy field will be related by J. Lorne Gray, general manager of Atomic Energy of Canada, Ltd.

Among the other sessions planned for the institute will be the AEC contractor and supplier, and radiation hazards to life and property.

Boskey will act as moderator of the institute's round-up of problems and solutions.

Credit Association to Hear Utility Collection Methods

When the National Retail Credit Association holds its 38th International Consumer Credit Conference June 23-26 at Statler Hotel, Washington, D. C., several utility papers will be presented. Among the papers scheduled for presentation is "Operations of the Office of Price Stabilization—Public Utility Division." The paper will be presented by Harry Reid, a public utilities specialist with the Public Utilities Branch, Public Utilities and Fuels Division of OPS. Charles A. Burns, Union Electric Co of Missouri, will offer a paper entitled "Telephone Collection Follow-up."

A paper entitled "Collection of Off Service Accounts" will be presented by J. E. Malone, East Ohio Gas Co, Cleveland. "Utility Collection Possibilities" is the title of the paper to be submitted by William R. Kane, of the Credit Bureau, Inc. Washington D. C.

CALENDAR

American Institute of Electrical Engineers
Summer General Meeting, Hotel Nicollet, Minneapolis, Minn., June 23-27.

American Society for Testing Materials
Annual Meeting, 50th Anniversary, Hotels Statler-New Yorker, New York, June 23-27.

National Retail Credit Association
International Consumer Credit Conference, Statler Hotel, Washington, D. C., June 23-26.

***University of Michigan**
Atomic Energy Institute, Ann Arbor, Mich., June 26-28.

Canadian Electrical Association
Annual Convention, Banff Springs Hotel, Banff, Alberta, June 30-July 2.

Maryland Utilities Association
Cavalier Hotel, Virginia Beach, Va., Sept. 5-6.

Rocky Mountain Electrical League
Fall Convention, Colorado Hotel, Glenwood Springs, Colo., Sept. 7-10.

American Standards Association
National Standardization Conference in conjunction with Centennial of Engineering, Museum of Science-Industry, Chicago, Ill., Sept. 8-10.

Illuminating Engineering Society
National Technical Conference, Edgewater Beach Hotel, Chicago, Ill., Sept. 8-12.

***American Society of Mechanical Engineers**
Fall Meeting, Sheraton Hotel, Chicago, Ill., Sept. 8-11.

***Edison Electric Institute**
Accident Prevention Committee, Sheraton Hotel, Rochester, N. Y., Sept. 15-16; Prime Movers Committee, Roosevelt Hotel, St. Louis, Mo., Oct. 6-7; AEIC joint meeting, Meter-Service Committees, Mayflower Hotel, Washington, D. C.; Oct. 6-8; Electrical Equipment Committee, Roosevelt Hotel, New York, Oct. 13-14; Transmission-Distribution Committee, Hotel Adolphus, Dallas, Tex., Oct. 23-24.

Public Information Program
Annual Workshop Conference, Edgewater Beach Hotel, Chicago, Ill., Sept. 18-19.

Public Utilities Association of the Virginias
Greenbrier Hotel, White Sulphur Springs, W. Va., Sept. 19-20.

National Electronics Conference
8th Annual Conference, Sherman Hotel, Chicago, Ill., Sept. 29-30 and Oct. 1.

Wisconsin Utilities Association
Convention of Technical-Sales Sections, Schroeder Hotel, Milwaukee, Wis., Oct. 1-3.

National Farm Electrification Conference
Statler Hotel, Detroit, Mich., Oct. 20-21.

National Electrical Manufacturers Association
Annual Meeting, Haddon Hall Hotel, Atlantic City, N. J., Nov. 10-13.

* Addition this week.

SPECIAL TRAIN took 240 analysts on this cross-country inspection of the nation's industrial facilities and utility plants

1. **NEW YORK** was the jump-off spot. Analysts Jeremy C. Jenks, Pierre R. Bretey and W. Truslow Hyde Jr helped organize the departure

Security Analysts Make Field Tour

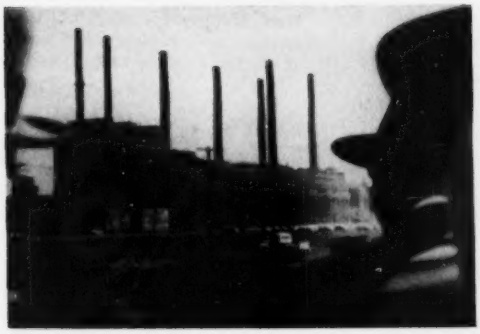
When you get right down to it, the security analysts in this country have a good bit to say about whether an electric power company gets the money it needs for plant expansion. So when these men from the investment houses expressed a desire to take a look at some utilities during an industrial tour of the west, the companies gladly obliged.

The analysts, 240 of them, made the junket in connection with the annual convention of the National Federation of Financial Analysts Societies, held recently in San Francisco. A special train took them from New York to the Coast. There, 40 members split off to visit Portland General Electric, Washington Water Power, and other industries in the Pacific Northwest. The rest stayed with the trains for a southern sweep back to Chicago.

4. **ARAPAHOE PLANT** of Public Service of Colorado was on tour's agenda. Analysts are shown looking over new station's generators

7. **SAN FRANCISCO** convention heard address by James B. Black, PG&E head, who told of company's $1 billion expansion program

8. **SAN DIEGO** sidetrip to Point Loma was arranged by San Diego Gas & Electric Co. The group also visited company's facilities

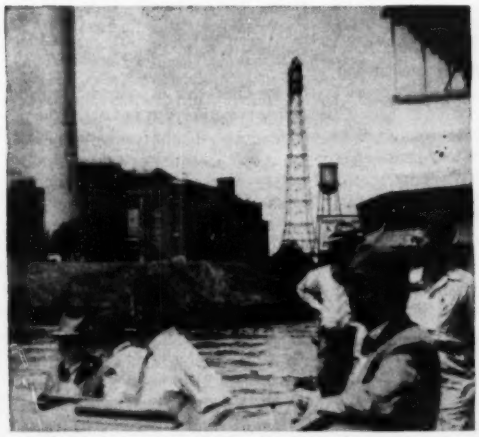


2. CHICAGO was the first stop. Here a group looks over a Commonwealth Edison plant while on flatcar tour of marshalling yards

3. DENVER came next. Gov. Dan Thornton (hat in hand) greeted members of the party on the steps of Colorado's mile-high capitol

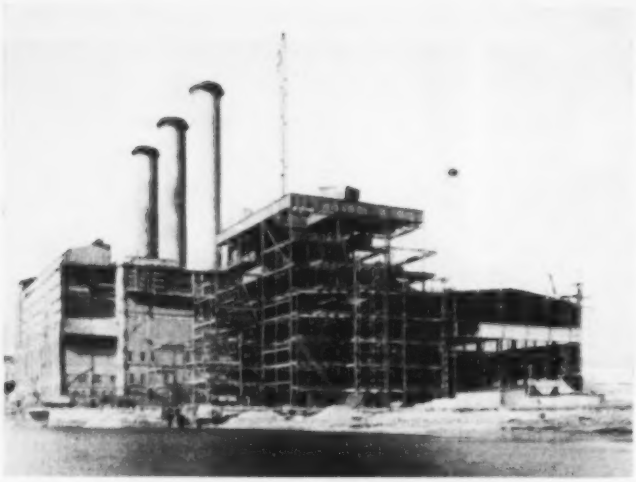
5. SALT LAKE CITY brought a guided tour of Utah Power & Light's Gadsby Plant. Pres. George M. Gadsby addressed the group in the modern auditorium of the new station

6. PACIFIC G&E showed off its Cresta hydro plant in the Feather River Canyon



9. HOUSTON boat trip took analysts along shipping canal past many industrial plants such as that of Houston Lighting & Power Co

10. TOUR ENDED with breakup of special train in Chicago. Bretey is shown saying goodbye to Joseph S. Nye, another New York analyst



Kearny Generating Station Grows Larger

The existing 334,000 kw at Kearny Generating Station of Public Service Electric & Gas Co will be augmented by two 145,000-kw units, bringing the total capacity at that location to 624,000 kw. At the center of the picture is the structural steel for the boiler house. Its equipment will include two semi-outdoor, 950,000-lb-per-hour, 2,350-psig, 1,100/1,050-F reheat, controlled-circulation, pressurized furnace boilers and pulverized coal equipment. At the right will be located the two 145,000-kw, single-shaft, turbine-generator units. These will have direct-connected auxiliary power generators. Bunker house, stacks, and temporary end of original station appear at the left.

Corps to Study Fish Problem

Agency starts nine-year program of research to find best type of facility which can be operated economically

The North Pacific Division of the Corps of Engineers has announced it has started on a nine-year program of engineering research on the migratory fish problem to discover: (1) What kind of facility will do the best job of getting fish past high dams, and (2) how this facility can be operated most efficiently and economically.

Division Engineer Col E. C. Itschner announcing the program in Portland, Ore., pointed out that fish facilities at Corps of Engineers' projects have become increasingly expensive. At Bonneville, they cost about $7.5 million, compared with $20 million at McNary, and an estimated $30 million for those under consideration for The Dalles Dam.

Costs High . . . Fish facilities could be built more economically and operated with considerable savings to the government, he declared, if more definite information regarding their limitations and requirements were known. Also, full development of Columbia Basin water resources depends on satisfactory solution of the many fish passage problems.

The program will be conducted in cooperation with fish and game commissions of Oregon, Washington, and Idaho and the U. S. Fish and Wildlife Service. Various universities and private individuals will be invited to take part in some portions of the project. Greatest activity is expected in the third to fifth years of the long-range program.

At Corps Dams Only . . . All investigations will be limited to problems definitely related to Corps of Engineers' dams, and no work purely biological in character or in the field of fisheries management will be undertaken. The program will be coordinated with fisheries research of other agencies to avoid duplication and to allow interchange of research results.

Power Through Heat

Improved gas cell is basis for development of new electricity producing process

Trial run of a direct heat-to-electricity process is being carried on by the Pittsburgh Consolidation Coal Co at its Library, Pa, research laboratory.

Core of the process is an improved fuel gas cell which relies on the conversion of highly reactive carbon into a water gas which is subsequently oxidized. This takes place in the presence of electrodes and solid electrolytes to produce electricity.

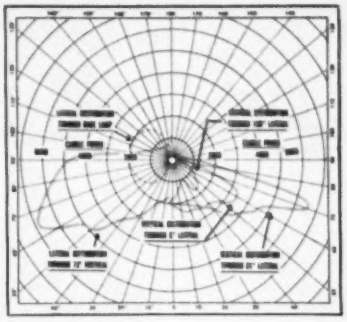
Prospects Bright . . . Government power experts who have examined the experiments are enthusiastic about the long-range possibilities of the process. But they do not believe it is far enough advanced to make any contribution to the electric power supply picture in the next five to ten years.

Present indications are that the power generated by this process would be most suitable for high-load-factor consumers. Feasibility studies on experimental operations indicate the cost of electricity produced in this manner may be attractive to industries requiring large amounts of electricity.

This type fuel gas cell was patented last fall by Dr Everett Gorin of Pittsburgh Consolidation. Efficiencies in conversion of heat to electricity are claimed to be as high as 75%.

Minor Obstacles . . . Biggest problem facing researchers at present is the operating life of the cell—particularly the anode, cathode, and solid electrolyte components. However the men conducting the experiments now foresee no insuperable obstacles in the way of producing a commercially feasible cell.

One cell which has been in operation at the laboratory has a capacity of approximately three-quarters of one kw. Men who have studied the process and witnessed the experiments see no reason why a large number of such cells cannot be used in parallel to form a power plant for industrial use.



The L-M *Ovalite* takes either incandescent or horizontal-burning mercury vapor lamps. Mercury lamp is high up in the reflector. This, combined with the design of the HOLOPHANE® refractor, results in low surface brightness and less glare, and a broad light-distribution pattern as shown by the curves in the chart.

New design of L-M Ovalite gives improved light distribution for mercury vapor

The new *Ovalite* is designed for high intensity lighting over a wide area. The rectangular Alzak reflector provides asymmetric light distribution. An Alzak deflector passes the light down around, not through, the lamp. Prisms on the house side of the Holophane refractor re-direct the light toward the street. Optional magnetic arc-control feature holds the arc in the optical center.

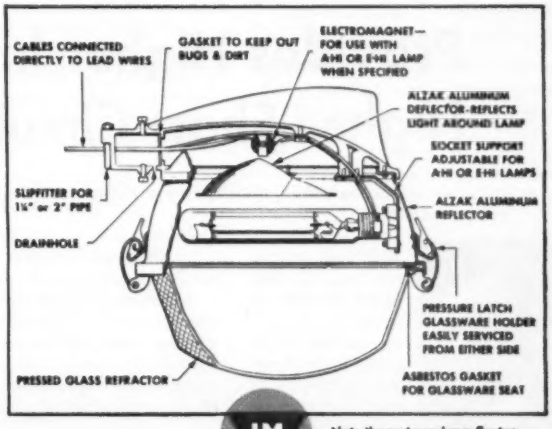
Lower mounting height—Unlike mercury vapor units with narrower distribution, the *Ovalite* provides wide IES type IV distribution. This means that the *Ovalite* is effective at lower mounting heights of 25 to 30 feet, which saves pole costs and maintenance. The use of elevating prisms in the refractor results in low surface brightness and minimum glare.

Unusual easy-service feature—Pressure latches on both sides hold the glassware snugly. Either latch acts as a hinge when the other is opened, permitting service from either side. An exclusive L-M feature.

Pendent or side-mounted, for either mercury or incandescent—The *Ovalite* takes mercury vapor E-H1, 20,000 lumens; A-H1, 15,000 lumens; or A-H5, 11,000 lumens; or incandescent lamps up to 15,000 lumens series. Slipfitter and pendent mountings in 1¼" or 2" sizes.

GET THIS FREE OVALITE BULLETIN

The *Ovalite* bulletin provides details on design, use, types, ballasts. Ask your L-M Field Engineer for a copy or write Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).


CABLES CONNECTED DIRECTLY TO LEAD WIRES
GASKET TO KEEP OUT BUGS & DIRT
ELECTROMAGNET—FOR USE WITH A-HI OR E-HI LAMP WHEN SPECIFIED
ALZAK ALUMINUM DEFLECTOR—REFLECTS LIGHT AROUND LAMP
SOCKET SUPPORT ADJUSTABLE FOR A-HI OR E-HI LAMPS
SLIPFITTER FOR 1¼" or 2" PIPE
ALZAK ALUMINUM REFLECTOR
DRAINHOLE
PRESSURE LATCH GLASSWARE HOLDER EASILY SERVICED FROM EITHER SIDE
PRESSED GLASS REFRACTOR
ASBESTOS GASKET FOR GLASSWARE SEAT

Note the rectangular reflector, the deflector, and the mounting of lamp well up in the reflector.

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LINE MATERIAL

Street Lighting

Ovalite is an L-M trademark

LET'S LOOK AT THE FACTS

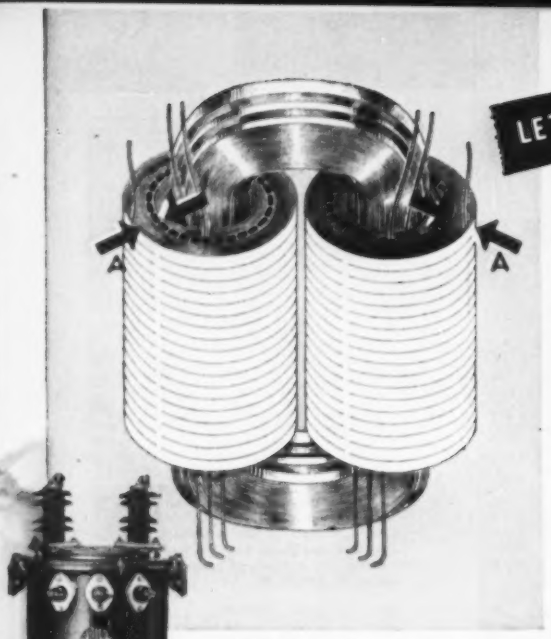

FIGURE 1. In Round-Wound transformers, primary windings are on the outside of the coils, providing ample creepage distance between high voltage leads and low voltage windings. Note the greater creepage distance "A" in this Round-Wound coil than "A" in the shell type construction shown in Figure 2.

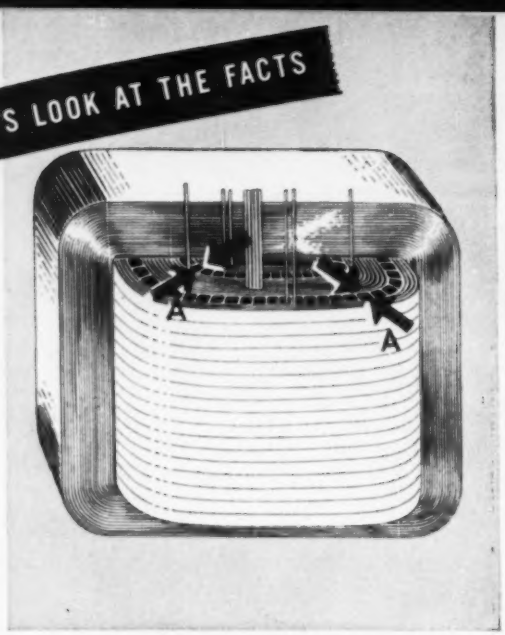

FIGURE 2. In the shell type of transformer, where the primary winding must be sandwiched between secondary windings, and are confined by core steel, primary leads are much closer to the secondary, resulting in far greater danger of flashover. Danger points are the short creepage distances "A" between the high voltage leads and the low voltage windings.

How L-M Round-Wound Design Provides Higher Impulse Level, Higher Short Circuit Strength

by **EARL J. KIRSCH**, Assistant Manager, Transformer Sales, Line Material Company

Both high impulse level and high short circuit strength are desirable characteristics in distribution transformers. A high impulse level will enable a transformer to resist lightning and switching surges of considerable magnitude. Short circuit strength will enable the transformer to withstand the great mechanical forces created by heavy short circuit currents.

High Impulse Level

Principal factors in attaining high impulse levels are the insulation between winding layers and the creepage distances between leads, windings, and frame. Lightning surges attempt to flash over or through insulation to the ground.

A particularly weak point in many transformers occurs across the end-coil surfaces where leads are brought out of the coils. As shown in Figure 1, it is a characteristic of the Round-Wound type of design that there is substantially more clearance between leads than is obtained with the one-coil shell type shown in Figure 2, where primary winding is often sandwiched between two layers of secondary, and more closely confined by core steel.

Core Versus Shell Type

In the L-M Round-Wound transformer, all of the primary winding is on the outside of the secondary winding. Leads are taken from the outside layer of the primary winding to the primary bushing, providing maximum creepage and flashover distances (Figure 1). In the shell type (Fig. 2), the designer must sandwich the primary winding between two layers of secondary to gain minimum acceptable clearance between the high voltage primary and the core, and to hold the impedance within acceptable limits.

Another problem is that surges tend to "pile up" on the end-turns nearest the bushing—which is why so large a percentage of burnouts occur at this point. Because of the design of the Round-Wound transformer, there is maximum separation of primary windings from ground, and maximum insulation between high and low voltage windings and between coils.

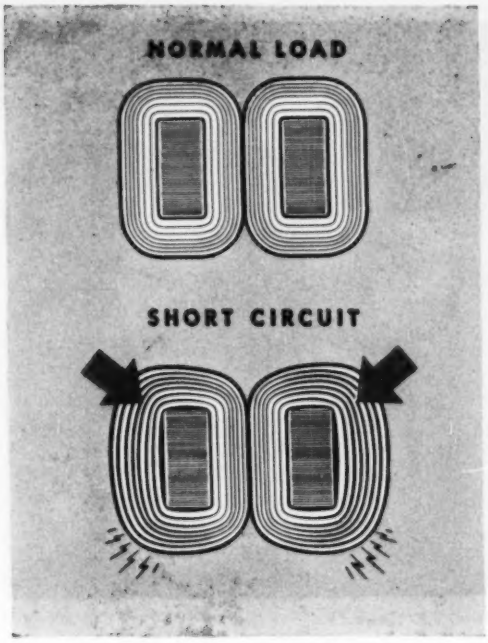

FIGURE 3. Under short circuit currents, rectangular coils tend to distort to a round shape. The forces may be violent enough to damage insulation or even cause complete failure of the coil.

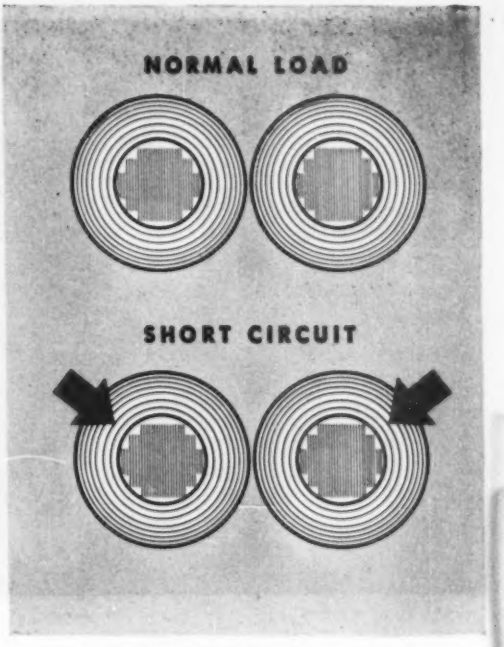

FIGURE 4. Since the coils on Round-Wound transformers are already round, short circuit currents produce very little distortion. Thus "Round-Wounds" have appreciably higher short circuit strength.

The fact that the Round-Wound coils are *round* means that they have not been malleted into a rectangular shape; there are no sharp corners and weak spots caused by damage to the insulation from malleting.

Basic design, plus generous insulation, assures the exceptionally high impulse strength of Round-Wound transformers that is proved not only in laboratory tests but also is borne out by long life performance in actual field service.

Short Circuit Strength

The round coils of the Round-Wound transformer are also a principal factor in the outstanding short circuit strength of this design. As shown in Figure 3, when rectangular coils are short-circuited, the heavy currents tend to force the windings into circular shape. This is very likely to result in damage to the insulation.

But round coils, already circular, are not stressed out of shape, and therefore are not subject to distortion and resulting damage (Figure 4). Thus round coils, plus substantial coil bracing, give Round-Wound transformers inherent advantages in short circuit strength, which contributes materially to their longer life.

Because of their design characteristics, and because of the elimination of variables in production, L-M Round-Wound transformers amply meet NEMA standards with a generous margin of safety.

For Complete Engineering Data

Ask the L-M Field Engineer for the information you want, or write Mr. Kirsch at the Transformer Division, Line Material Company, Zanesville, Ohio (a McGraw Electric Company Division).

Some Outstanding Characteristics of L-M Round-Wound Transformers

High Short Time Overload Capacity

Better Regulation at all power factors

High Impulse Level, with ample creepage distances and generous insulation

High Short Circuit Strength because round coils have less tendency to distort

Low Exciting Current because the core is not cut or disturbed after annealing

Better Loss Ratios with lower total losses

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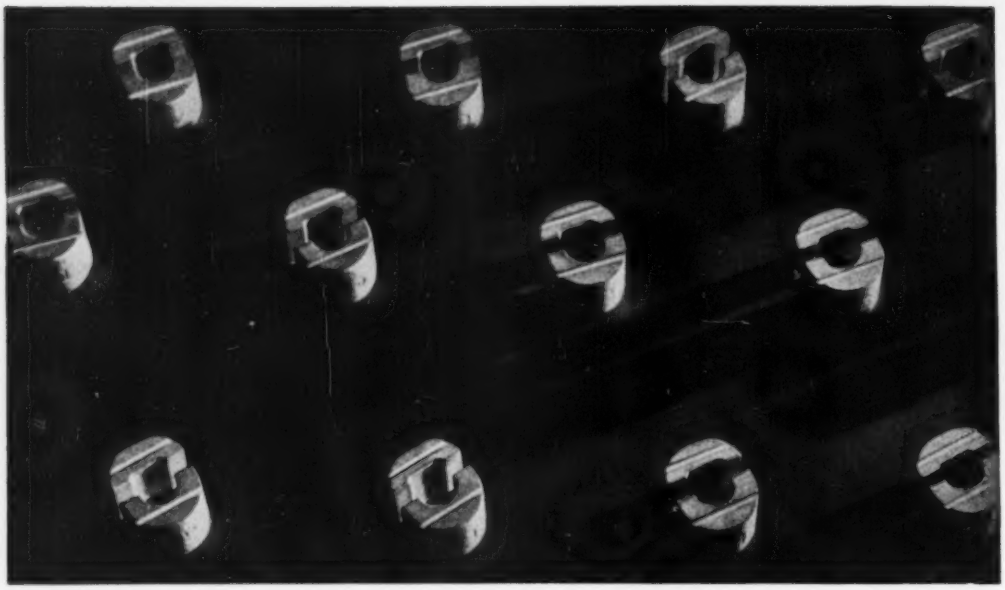
LINE MATERIAL

Transformers

Complete Coordinated Equipment for Distribution Today

"Round-Wound" is a Line Material trademark.



Sangamo J Meters

have damping magnets that are *permanent*

Sangamo Type J Watthour Meters are equipped with surge-proof alnico damping magnets to completely eliminate change in calibration.

Because the damping magnets control the speed of the meter, accuracy depends on the permanence of their strength. Alnico has many times the resistance to the demagnetizing effects of lightning surges as the best forged steel magnet materials.

The aluminum mounting clamp provides additional protection since it acts as an effective shield, further insuring the permanence of the damping force.

No report has ever been received of a J Meter speeding up in service due to loss in damping strength . . . and more than five million Sangamo Type J Watthour Meters are in service . . . many for more than ten years!

Only Measured Facts are Known Facts

SANGAMO
ELECTRIC COMPANY
SPRINGFIELD, ILLINOIS

Sangamo J Meters have proved their ability to meet today's requirements and tomorrow's anticipated loads with sustained accuracy, economy of maintenance and troublefree performance.

SM52-3A

Southern Elects Vaden a VP

Official is assigned to company's Atlanta headquarters. Crist heads new Birmingham office

T. H. VADEN

T. H. Vaden has been elected a vice president of the Southern Co.

Vaden, formerly associated with Alabama Power Co, a Southern subsidiary, succeeds James F. Crist, vice president of Southern, in the Atlanta (Ga.) office and will assist C. B. McManus, president, who is in charge. Crist has been transferred to the company's newly established Birmingham (Ala.) office.

The transfer is in keeping with the policy of shifting executives from one part of the territory to another to meet the new and varied problems arising from the rapidly expanding operations of the company's subsidiaries.

Utility Veteran . . . The newly elected vice president has been employed by Alabama Power for the past 29 years and has been the company's division manager at Anniston for the last six years. A graduate of Virginia Military Institute, Vaden served as a lieutenant colonel in the Army during World War II.

Crist, who has been vice president of Southern since 1947, started with Alabama Power in 1926 and has been continuously associated since that time with companies which are now, or were, affiliated with the Southern group. He became president of Southern's Gulf Power Co, an office he still holds, in 1948 and was elected a director of Southern in 1949. Crist, who also graduated from VMI, is a graduate of Massachusetts Institute of Technology and also attended Harvard University.

•

William T. Richards has been promoted to the new position of commercial manager of Indianapolis Power & Light Co and will be in charge of all electric sales development. Richards, who started with Indianapolis P&L in 1926, has been assistant sales manager since 1946. The utility also announced the retirement from active service of **A. C. Crandall,** vice president in charge of sales. Crandall, with the utility since 1937, was made vice president in charge of sales in 1940.

George T. Bogard has been made manager of the newly created utility sales department of General Electric Co's Major Appliance Division. Bogard, who has been with the GE for the past 18 years, will assist the company's distributors in the development of major appliance business through merchandising and non-merchandising utilities. From early 1951 until his present appointment he has been manager of sales to consulting engineers for the Apparatus Sales Division at Schenectady, N. Y.

Forrest U. Ross, assistant vice president of the Eastern Division of Virginia Electric & Power Co at Norfolk, has been appointed to fill the newly created position of manager of the Richmond area. Ross, who joined Vepco in 1925, was the utility's manager of the Portsmouth district from 1938 until 1946, when he was named to the Eastern Division post. He will take over his new position at Richmond on July 1.

Richard R. Burkholder has been appointed electric range advertising supervisor for Westinghouse Electric Corp's Electric Appliance Division, Mansfield, Ohio. Burkholder, who became advertising assistant with the laundry equipment department in July 1949, will work on preparation of all advertising and related materials for the company's line of electric ranges. He began with Westinghouse in March 1949 as an advertising student.

B. W. Clark, director of Electrical Equipment Division of the National Production Authority, has taken a two-month leave of absence. In his absence, **Luther D. Shank,** deputy director, will serve as acting director of the division. **Carney G. Leslie, Jr,** chief of the Program and Requirements Branch of the division, will serve as acting deputy director.

Hubbard & Co Appoints Marshall Lasher a VP

Marshall Lasher has been appointed a vice president of Hubbard & Co, California, and elected a director of Hubbard & Co, Pittsburgh, Pa. The company also transferred Raymond M. Waggoner from Pittsburgh to Oakland, Calif., as vice president, Pacific Coast sales.

Lasher came to Hubbard in 1922 and was first employed in the Railway Track Tool Division as assistant manager. In 1926 he was transferred to the Electrical Materials Division. In 1929 he was appointed assistant manager of the Pittsburgh factory and later became assistant to the executive vice president. In 1945 he went to Oakland as assistant to the late W. W. Glosser, who was at that time vice president of Hubbard, California.

Waggoner started his career with Hubbard in 1922 doing sales work with the Electrical Materials Division. In 1928 he was appointed assistant sales manager, Northeastern territory. Eight years later he was transferred to Chicago as sales manager of the Midwest territory. In 1948 he was elected vice president, sales, and a director of Hubbard and returned to Pittsburgh.

James H. Oakes, former sales manager of enclosed drives for Link-Belt Co, Chicago, has been named sales manager for the firm's Philadelphia plant. **Byron K. Hartman,** former assistant sales manager at Philadelphia, has been made sales manager for the new

Colmar (Pa.) plant which will begin operations later this year. Oakes joined the L-B Dodge plant at Indianapolis in 1929. Hartman began with the L-B Philadelphia plant in 1937.

Albert J. Rosebraugh, manager of distribution in Philadelphia for Philco Corp, has been appointed sales manager of refrigeration. Rosebraugh joined Philco in 1929.

Frank P. Taugher, former manager of the industrial control engineering department of the Motor and Control Division of Westinghouse Electric Corp, has been appointed to the newly created position of assistant to the vice president. His successor is **D. L. Pierce,** former manager of the general purpose division of that department. Taugher started with Westinghouse in 1927 and Pierce came to the company in 1925.

Kadlac, Cooper Elevated by Jersey Central P&L

Jersey Central Power & Light Co, Asbury Park, N. J., has announced several promotions in its safety and engineering departments.

William Kadlac has been appointed safety engineer after having served in the department as inspector since 1945. His new duties will include accident prevention work throughout the company, safety inspections of physical properties and working conditions and other related activities.

Leslie Cooper, formerly an adjuster and safety inspector, has been promoted to the right-of-way branch of the engineering department. He will be succeeded by Joseph Previte, who was formerly affiliated with the Employers Liability Assurance Co and American Casualty Co.

Kadlac joined the utility in 1942 and Cooper in 1948.

Made a Vice President

Frederick Krug, who has been a director of International Power Co, Ltd, Montreal, since 1945, has been appointed a vice president of the company. Associated with the Porto Rico Railway, Light & Power Co from 1922 to 1936, he joined Montreal Engineering Co, Ltd, in the latter year and is now general manager of that concern.

C. E. IDE

Charles E. Ide Is Named President of Ohio Group

Charles E. Ide, president of Toledo Edison Co, has been elected president of Ohio Electric Utility Institute. He succeeds Harold Turner, vice president and general manager of Ohio Power Co.

James M. Stuart, vice president and general manager, Dayton Power & Light Co, was elected vice president. H. C. Vincent, treasurer of Columbus & Southern Ohio Electric Co, and J. B. Johnson, former vice president of Ohio Public Service Co, were re-elected treasurer and manager-secretary, respectively.

Ide, who joined Toledo Edison in 1945 as executive vice president, has been serving as president of the utility since 1949. Prior to joining the Toledo utility, he was president of East Tennessee Light & Power Co.

The Ohio institute played host to Edison Electric Institute's 20th annual convention, which was held June 2-4 at Cleveland.

H. N. Otis, who has been serving in the sales department of Anaconda Wire & Cable Co at New York since 1943, has retired after 23 years' service with the firm. From 1936 until 1943 he was in charge of sales of insulated products for the Middle Western district.

Erwin E. Lehmann has been named manager of General Electric Co's Euclid Lamp Works, Cleveland, which produces special incandescent lamp bulbs. He succeeds **George A. Goerss,** who, although retired, will continue in an advisory capacity until Sept. 1. Lehmann, who joined GE in 1917, has been assistant manager of the Euclid Lamp Works since 1928. Goerss, who came to GE in 1908, was made manager of the Euclid plant in 1926.

OBITUARY

Joseph W. Mullally, 54, manager of utilities sales for Anaconda Wire & Cable Co, New York, died June 10 while on a business trip in Washington, D. C. Mullally, who joined Anaconda in 1930, served during World War II as chief of the Wire Mill Branch of the Copper Division of the War Production Board. After serving in the Copper Division of the National Production Authority from March through December in 1951, first as a consultant and later as the division's deputy director, he returned to Anaconda as manager of utility sales.

Vernon J. Nelson, 42, Wallace (Idaho), division manager for Washington Water Power Co, died May 31 at Wallace. Nelson, who started with WWP in 1935, had been in charge of the Wallace operation since 1947.

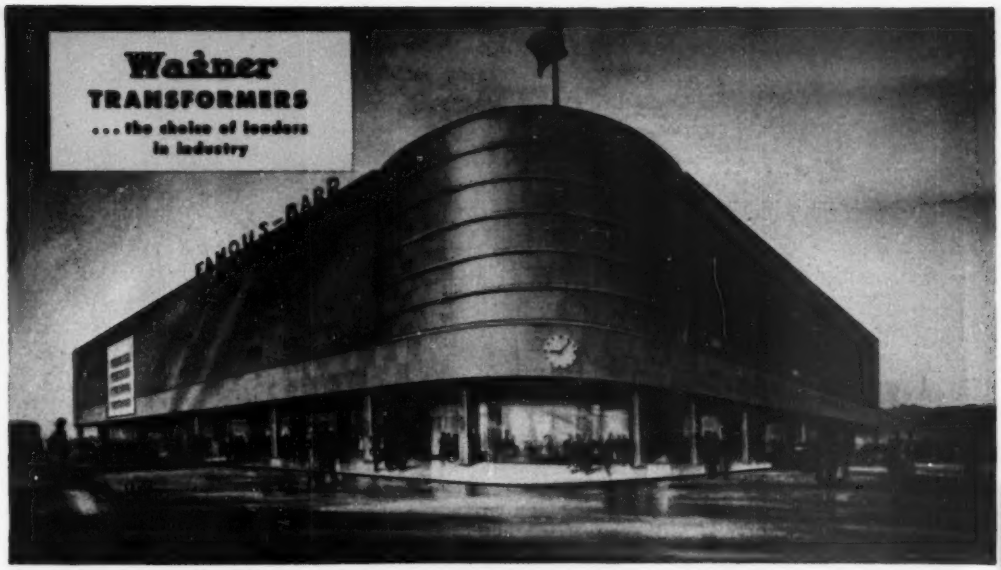
Clifford L. Harrod, 66, former utility official, died June 8 at St. Louis, Mo. Harrod was elected president of Indianapolis Power & Light Co in 1930. He became president of the former Laclede Power & Light Co in 1938 and head of the former Central States Power & Light Corp in 1939.

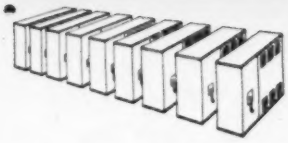
Arthur L. Harding, 64, formerly chief electrical engineer of Ebasco Services, Inc, died May 2, near Casablanca, French Morocco, while on tour of Europe and Africa. Harding started with Ebasco in 1916, retiring in 1946.

P. D. Rensenhouse, vice president and treasurer of Essex Wire Corp, Fort Wayne, Ind., died May 24 at Fort Wayne.

August G. Kelterborn, 69, senior electrical engineer of Burns & Roe, Inc, New York, engineering consultants, died recently.

Loui Garrett, 86, who served for 27 years as secretary of Arkansas Power & Light Co and predecessor companies, died June 2 at Pine Bluff, Ark. He retired in 1945.





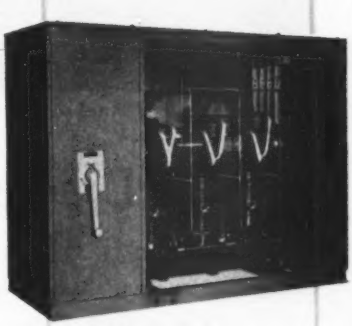
...to power the store with the "magic core"

Famous-Barr Company's new Southtown store in outlying St. Louis (one of the newest of the May Company stores) is built around a working heart, called the "magic core," designed to provide the utmost in efficiency with resulting economies in operation.

The core centers all facilities for receiving and shipping, it houses all elevators and stock floors, and contains the store's major heating, plumbing, air-conditioning, and electric installations—including the nine Wagner Unit Substation Transformers that distribute electric power throughout the store.

Wagner Transformers are an important part of the equipment of many major businesses and industries. They deliver electric power at exactly the right voltage for use at each load center. They have a reputation for complete dependability—for unfailing service.

Wagner engineers are qualified to specify the correct transformer for *your* needs. Consult the nearest of our 32 branch offices, or write us.



One of the nine unit substations that power the store with the "magic core." The front panel of the enclosure is removed to show the core and coils of the 3 phase Wagner dry type transformer.

Wagner Electric Corporation
6456 Plymouth Ave., St. Louis 14, Mo., U. S. A.

Wagner Electric Corporation EST 1891

ELECTRIC MOTORS • TRANSFORMERS
INDUSTRIAL BRAKES
AUTOMOTIVE BRAKE SYSTEMS — AIR AND HYDRAULIC

W-7511-1

U. S. ENGINEER S. B. McCrary addresses switchgear section at CIGRE meeting. McCrary is manager of GE Analytical Engineering Department

CIGRE Discusses Voltage Practices

Delegates from 42 countries attend conference in Paris on high-tension transmission developments and related problems

J. H. M. SYKES, 67 Chaucer Road, Bedford, England

Thirty-six American engineers were on hand for the 14th biennial session of the International Conference on Large Electric High-Tension Systems (CIGRE) held in Paris May 28-June 7. Heading the American delegation was Frank Attwood, vice president, Ohio Brass Co. Another prominent member of the U. S. group was Philip Sporn, president of American Gas & Electric Co.

In all 1,300 delegates from 42 countries attended the sessions at which 121 papers were presented. The distinguished gathering of high voltage network engineers combined hard work by day (sessions ran from 9:30 A.M. to 6 P.M.) with receptions by night during the 11-day conference.

Technical highlights of the conference included a description of the Swedish 380-kv line—the world's first at this voltage—made alive on March 31. This line, 600 miles long, employs twin conductors and is to be fitted (Power-Board President Ake Rusck informed CIGRE) with series capacitors in 1954. No report this year described progress on the other Swedish experiment, the high voltage dc interconnection with Gotland, 62½ miles off the Swedish coast.

American Viewpoint . . . On high voltage ac development generally, divergence of viewpoint between American engineers and continental and British designers showed up in the discussion on a paper by Sporn; H. P. St. Clair, system planning engineer; and E. L. Peterson, transmission engineer, American Gas & Electric Co. Their paper gave exhaustive reasons why on economic grounds in terms of installed costs of lines and associated terminal equipment and basic load carrying capacity of transmission circuits in terms of voltage and distance 330 kv was likely to give American utilities all the transmission

capacity they should need in the foreseeable future.

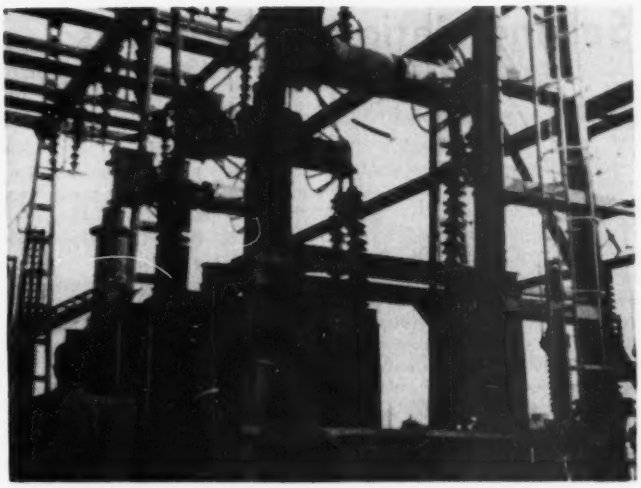
British and continental opinion, however, held that voltage standards such as 275 kv for Great Britain and for some continental countries and the level of 380 kv already adopted in Sweden and under consideration elsewhere on the continent would be preferable. It was suggested that in breaking away and choosing a new standard figure difficulties would arise in international trading in transformers and other associated gear. The American views were strongly held, however, and the American engineers' faith in their choice of voltage level was not shaken.

Developments in U. S. . . . F. L. Adams, chief of Bureau of Power of U. S. Federal Power Commission, said that in western U. S. the power systems were on the threshold of a new era of high voltage development, going to 330 kv and even higher. Plans must be made, he said, for a common network linking all the large power pools. (Of total U. S. power plants, 85% are now in such pools, said H. L. Melvin, Ebasco Services.) Bonneville Power Administration's chief engineer, S. E. Schultz, said the conditions under which direct current transmission could be employed must form part of every project investigation from now on. So far dc had been found too costly for overhead lines.

A U.S.S.R. paper, introduced late, described plans for 400-kv, ac lines from Kubisheff to Moscow (925 km) and Stalingrad to Moscow (1,000 km). Series capacitors and shunt reactors at three intermediate substations are planned. Completion is scheduled for 1955.

Among many papers on switchgear, leading towards possible standard specifications incorporating closely specified rates of rise of restriking voltage and amplitude factors, British engineers took the rostrum to endeavor to suggest possible reference values.

BPA Tests . . . The only American contribution to this discussion was made by Schultz, who talked on the Swiss Brown Boveri circuit breaker recently tested exhaustively on BPA's network. He said the use of a good breaker, which would reclose in a time of the order of 0.15 second, had allowed his transmission engineers to remove the ground wire on overhead lines and accept more lightning strokes as a consequence, without endangering security of supply.



CIGRE DELEGATES inspect a 220-kv minimum oil volume circuit breaker, manufactured by U. S. firm, being installed at the Fontenay Testing Station of Electricite de France near Paris

The Brown Boveri breaker had satisfied BPA's needs for a circuit breaking device which was easily maintained, devoid of oil, and certain in operation, while at the same time admitting of ultra rapid reclosure. He paid tribute to the rest of the papers in the switchgear section for the information they had given to help solve the problem of restriking after the breaker had first opened the circuit.

A British Electricity Authority engineer urged closer collaboration between utilities having extensive high voltage power networks and those responsible for short circuit testing stations. No supply engineer, he said, was willing to install a breaker on his network until it had satisfied tests as near full-scale as possible. He paid tribute to the work done at Tidd in the U. S. and at Fontenay in Paris where system fault tests were possible.

Circuit Breaker Design . . . Other switchgear papers indicated courageous action on the part of three manufacturing associates of Electricite de France, resulting in entirely novel designs for high voltage high power circuit breakers of greatly reduced cost, weight, and bulk. These designs involved suspension of the circuit breaker unit from the substation steel work and the combining of the associated series isolator with one of the ordinary disconnecting links installed on either side of the breaker. Remote control by UHF radio was envisaged, together with compressed air storage on the breaker offering facilities for 200 operations, and renewed through a small insulated feed pipe.

In the discussion on these proposals it was suggested that while they may be too revolutionary for the moment, the re-examination of the fundamental factors in circuit breaker design may result in cheaper circuit breakers within simplified operating mechanisms.

Transformers Discussed . . . The transformer discussion went some way towards coordinating different nations' ideas on the proper loading specification for large power transformers. There was no American contribution to the written papers, but it was obvious in the discussion that the use of the thermal image is strongly advocated on the continent and to a limited extent in America. The protagonists of this device say that when its operation is fully established it will enable much greater use to be made of the active materials in a given transformer, since the acceptable amount of aging due to "overloading" can be automatically controlled to within desired limits.

Technical visits included a tour of Fontenay, Electricite de France high power testing station. This layout was universally admired.

(Abstracts of selected CIGRE papers will appear serially in subsequent issues of Electrical World.)

Setting National Standards

ASA official describes India's newly established program and the activities of Australian and New Zealand associations

Standardization is recognized in India, Australia, and New Zealand as one of the basic tools for improving a nation's economy and developing its industry. This observation was made recently by Cyril Ainsworth, technical director and assistant secretary of the American Standards Association, who visited standards institutes in the three countries earlier this year.

India's fledgling standards association has developed only a few national standards, but the programs in Australia and New Zealand are quite extensive, Ainsworth reported.

Indian Standards . . . The Indian Standards Institution was established last year. Only a small amount of standardization work has been done in the electrical field. Standardization of transmission voltages is being conducted under the auspices of the government.

Six national standards have been established by the ISI, a body supported by private industry and government. These are standards for dry cell batteries, galvanized iron and steel wire, hard drawn copper solid and stranded wire, conductors for overhead power lines, porcelain insulators for telephone and telegraph lines, and domestic electric appliances. A single standard has been adopted for electric appliances covering general requirements for all types of appliances.

The need for electrical standardization in India will be just as great as in the United States, Ainsworth believes. The large water power resources of the country, he feels, will undoubtedly bring about a broad and extended use of electricity. Indications are standardization will be one of the main avenues of building an electric power and manufacturing industry throughout the country, he said.

Australia's Program . . . In Australia, Ainsworth pointed out, standardization is not new. That country's program is about as old as the one in the United States.

The Standards Association of Australia, also a private organization supported by industry and government, has done considerable amount of work in the field of electrical standardization.

Standardization of voltages and frequencies dates back to 1938 in Australia. In all, about 50 or 60 national standards have been adopted in the electrical field, many of them based on standardization practice in Great Britain.

New Zealand's Activities . . . New Zealand has a well developed standardization program, although it is not quite so extensive as Australia's, Ainsworth explained. The New Zealand Standards Association, a governmental body, has developed a glossary of terms and a large number of electrical standards. Standards have been established for two electric appliances. They are refrigerators and water heaters.

It is expected that the importance of standardization in New Zealand will increase with the growth of its power industry. The country has large sources of hydroelectric power available and a relatively small population —2 million. The country claims to have the highest per capita use of electric clothes washing equipment of any nation in the world. This is chiefly because power rates in New Zealand are low.

Certification and Labeling . . . In all three countries, the standards institutions are actively promoting the certification and labeling of products to show compliance with national standards. Australia and New Zealand already have developed extensive programs. And recently a law was passed in India giving the standards institute broad powers in the field of certification and labeling.

These activities may have an important effect on American exports to the three countries, Ainsworth declared.

Changes in Capacity Reported to FPC

PLANT ADDITIONS DURING APRIL

State	Utility	Plant	Fuel	Capacity (Kw)
Mass.	Fitchburg Gas & Electric Co.	Fitchburg	S	7,125
R. I.	Narragansett Electric Light Co.	South County	IC	5,000
Penn.	Duquesne Light Co.	Elrama	S	80,000
Penn.	Grove City Municipal Light & Water Department	Grove City	IC	900
Ohio	Columbus & Southern Ohio Electric Co.	Boston	S	60,000
Mich.	Zeeland City Light & Power Department	Zeeland	IC	1,170
Minn.	Thief River Falls Water & Light Department	Nordberg	IC	1,136
Kan.	St. John Municipal Light Department	St. John	IC	980
Fla.	Florida Power & Light Co.	Mobile Railway Unit	IC	700
Tenn.	Tennessee Valley Authority	Jacksonville	S	112,500
La.	Minden Light & Water Department	Minden	IC	2,250
La.	New Orleans Public Service, Inc.	Market St.	S	28,000
Colo.	Las Animas Municipal Light & Power	Las Animas	IC	1,860
Colo.	Town of Holly	Holly	IC	200
Ariz.	Bureau of Reclamation	Hoover Dam	H	50,000
Calif.	Los Angeles Department Water & Power	Control Gorge	H	37,500

PLANT RETIREMENTS DURING APRIL

Mich.	Consumers Power Co.	Hesperia	IC	330
Mich.	Consumers Power Co.	Albion	H	150
Mich.	Upper Peninsula Power Co.	Houghton	S	1,000
Wis.	Dairyland Power Cooperative	Baldwin	IC	2,500
Wis.	Wisconsin Power & Light Co.	Black Hawk	S	1,000
Tenn.	Lawrenceburg Light Department	Lawrenceburg	H	650
La.	Minden Light & Water Department	Minden	IC	336
Tex.	Texas Electric Service Co.	Fullerton	IC	30
Ariz.	Salt River Valley Water Users Association	Salt River Project	H	800
Nev.	Carlin Municipal Electric Light Plant	Carlin	IC	144
Ore.	California Pacific Utilities Co.	Prairie City	IC	1,130
Ore.	California Pacific Utilities Co.	Long Creek	IC	175

H—Hydro, IC—Internal Combustion, S—Steam
United States Capacity as of May 1—Hydro, 19,138,467 kw; Internal Combustion, 2,010,697 kw; Steam, 55,666,443 kw; Total, 76,815,607 kw.

SWEET POTATO PLANTS, sturdy and with good root formation, after about 25 days growth are ready for transplanting in field. Plants are grown from seed potatoes in 720 sq ft bed. Here bed temperature is kept constant by electric soil-heating cable and thermostats

Quality Sweet Potato Plants Sprout in Nine Days

M. O. WHITHED, Rural Supervisor, Atlantic City Electric Co, Atlantic City, N. J.

Starting plants from seed with the aid of electric soil-heating cable has permitted earlier production of certain vegetables for Joseph Presti, proprietor of Sunnyside Farm, Hammonton, N. J.

A specialty is the growing of sweet potatoes. Here seed sweet potatoes are planted in outdoor 720-sq ft beds as early as the middle of April and on to the middle of May. Sprouting starts in 9-10 days as compared to 2 weeks or more by nature. About 25 days after a bed is started, the plants are ready for transplanting in nearby fields. In addition to the early start in growing, the plants are more sturdy, more stocky and have superior root formation. By this method the plants produce for the market 2-3 weeks earlier than do those grown by conventional methods.

The 60x12-ft seed bed is about 18 in. lower than surrounding ground surface and is lined with concrete blocks on both sides and ends. Twelve cables, each rated 800 w and formed in a loop, are laid the length of the prepared bottom. Then 2-3 in. of soil is put over the cable, the seed sweet potatoes are placed in the bed and another layer of soil put on the seed. About nine bales of salt hay are scattered on the surface to prevent heat loss.

Connected load is 9.6 kw per bed. The beds require 3,000-4,000 kwhr each per month in maintaining an even temperature. Starting temperature is 80-85 F till sprouts break through the ground, then the temperature is lowered as the operation desires. Thermostat tubes are placed in the bed at the same level as the seed potatoes, 3-4 ft from either side and the same distance from either end.

Only Selling Can Cure This Condition

Appliance dealers who expect to separate a consumer from his money this year will have one big problem—price. That's the number one lesson from the Federal Reserve Board's annual survey of consumer spending plans. Information was gathered by personal interviews in January and February. Consumers will have plenty of money to spend—if they want to spend it. But the survey shows a persistent belief that prices are too high.

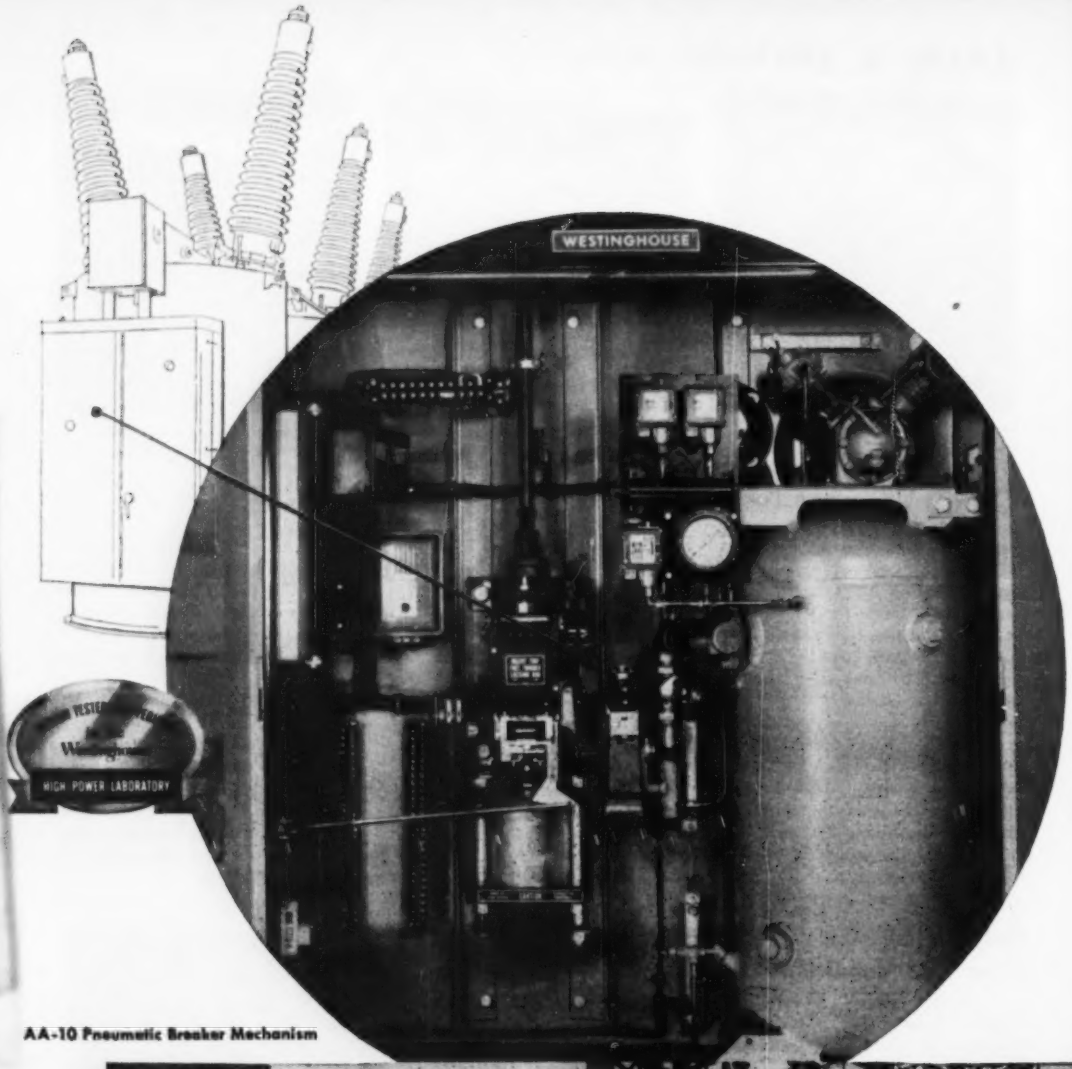
As a result, consumer plans for buying major household appliances were at a lower level this January-February than in the same period last year. Toward the bottom of the "intention-to-buy" list are refrigerators, console radios and washing machines. Near the top is TV. In fact, TV demand looks as good as it did

(*Continued on page* 39)

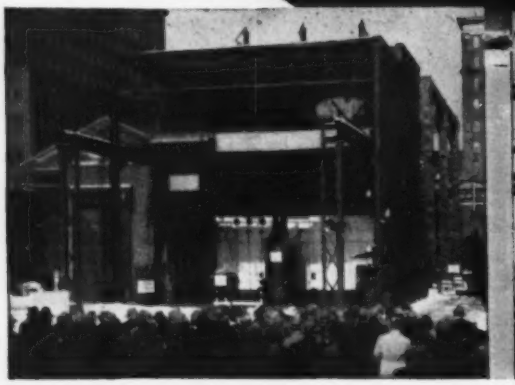
Sylvania Electric Products Inc

Heat Lamp Helps to Wean Lambs

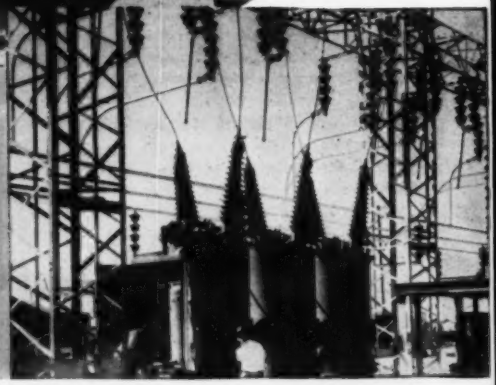
Like human babies, lambs often prefer to obtain their sustenance in the manner of their first nourishment and they have to be persuaded to look elsewhere for food. At the University of Wisconsin sheep farm, the warmth of a heat lamp coaxes the lambs to the "creep" feeding trough, so-called because they are at the creeping stage, when they need both heat and solid food.



AA-10 Pneumatic Breaker Mechanism



These breaker mechanisms, like every advance in Westinghouse apparatus design, have been proved in exhaustive tests in the Westinghouse High Power Laboratory.



This 10,000,000-kva, 161-kv, 3-cycle breaker is equipped with an AA-10 pneumatic mechanism, and arranged for 20-30-30 cycle multiple reclosing.

New Breaker Operating Mechanisms Combine High Speed Reclosing...and Mechanically Trip-Free Opening

Two pneumatic operating mechanisms—the AA-7 and AA-10—now handle the complete range of Westinghouse Oil Circuit Breakers, from 15 kv, 500,000 kva to 230 kv, 15,000,000 kva. They provide new standards of operation.

THE AA-10 MECHANISM IS . . .

Larger . . . more powerful to meet the closing requirements of today's highest rated breakers.

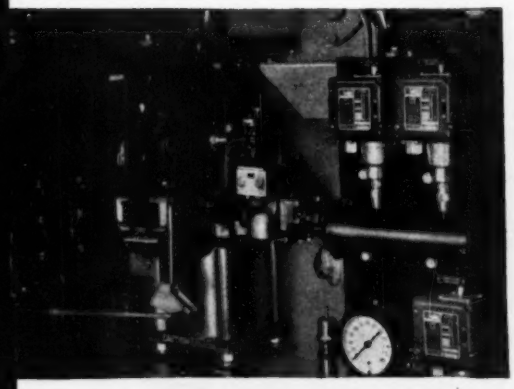
Selective . . . It trips mechanically trip-free whenever there is high-pressure air in the closing cylinder . . . contacts open unrestrained . . . never a drag from the closing piston. For high-speed reclosing, the mechanism trips non-trip-free . . . opens only part way and quickly recloses, greatly reducing stress on both the mechanism and breaker.

Unlimited Reclosing Possibilities . . . High-speed reclosing in 20 cycles, or . . . ultra-high-speed reclosing in 15 cycles or less, or . . . multiple high-speed reclosures.

THE AA-7 MECHANISM . . . Mechanically trip-free for all operations . . . meets the closing requirements of moderately loaded breakers and provides 20-cycle reclosing even after mechanically trip-free opening.

Proved Operation

Exhaustive tests in the Westinghouse High Power Laboratory and field experience on the largest breakers in service today are your assurance of perfect mechanism performance. For complete details, ask for Bulletin DB 33-125. Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.



The AA-7 mechanism, like the AA-10, features roller-bearing latches, no adjustments, simplified air control, unrestricted access to all components.

See "Electrical Proving Ground"

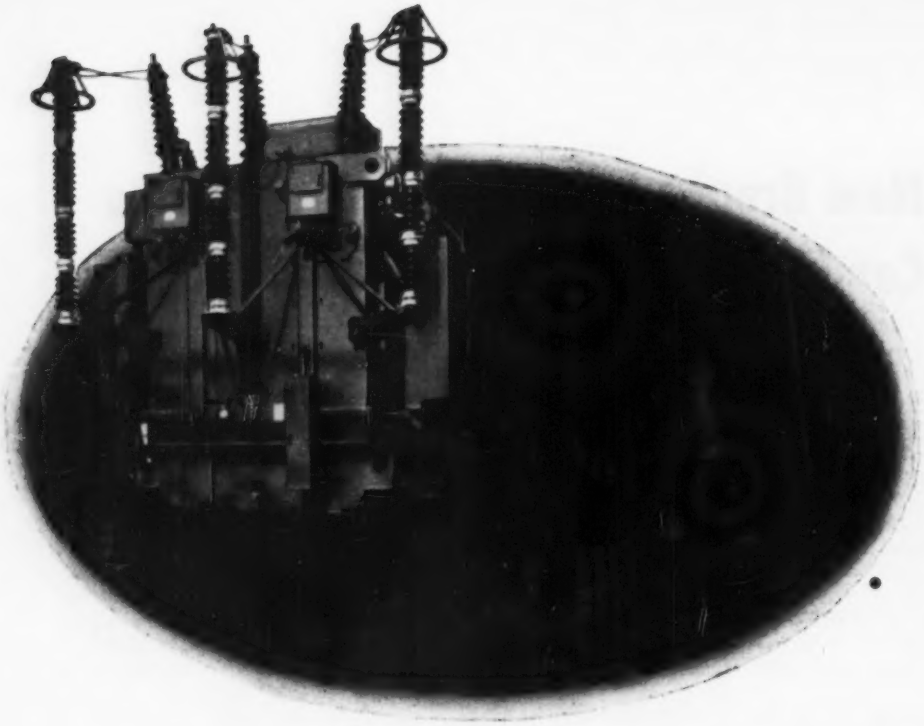
The dramatic story of the Westinghouse High Power Laboratory in sound and color motion picture. For details see your Westinghouse representative, or write Westinghouse Film Division, P. O. Box 868, Pittsburgh 30, Pa. J-60782

ELECTRICAL PROVING GROUND

YOU CAN BE SURE... IF IT'S

Westinghouse

POWER CIRCUIT BREAKERS



ADDED PROOF of power transformer quality

SELECTIVE SURGE TESTING ON THE PRODUCTION LINE!

Your greatest assurance of reliability is *proof by actual test.* That's why many users specify ASA and NEMA surge tests.

That's why Westinghouse engineers, too, surge test certain power transformers on the production line. In fact, it has been a production line procedure at Westinghouse for many years. Routine daily tests prove quality of design, workmanship and materials. An ever-increasing number of transformers are being quality control tested. Such tests are particularly important on transformers rated above 69 kv.

Surge testing on the line is *that extra step* that assures Westinghouse quality . . . quality that means extra dependability for you.

Your Westinghouse representative will be glad to discuss all the advantages that Westinghouse power transformers offer you. For details on production line surge testing, ask him for a copy of booklet B-5471, or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

J-70621

YOU CAN BE SURE...IF IT'S Westinghouse

POWER TRANSFORMERS

Selling Only Cure

(*Continued from page* 35)

last year—the only major appliance put in this category by the Federal Reserve analysis.

The housing section of the survey is a cheerful one, so far as the appliance business goes. Indications are that just about as many families will be furnishing new houses this year as last. Those expressing a definite intention to buy new or existing houses total about the same as last year. There was some decline in the number who said they might buy. For housing plans, the survey even took a look into 1953. What it saw was encouraging. Those who plan to buy a new house in 1953 are at least as many as those who plan to buy this year.

The 1952 price problem crops up several ways in the survey. For example: six out of ten persons interviewed said this was a poor time to buy, three said this was a good time to buy and one had no opinion. Put another way, it means twice as many people think this a poor time to buy, as think it is a good time. And high prices are the chief reason given by those who think it is a poor time.

Consumers don't seem to be saying this with any idea of waiting a few months for an expected down-turn in price. Just the opposite. Six out of ten say they think prices will rise during the year; three think prices will hold even, and only one expects a drop. Consumers are cheerful about expected income—for every one who expects a decrease, four expect an increase. But one-third think prices will go up during the year more than their incomes.

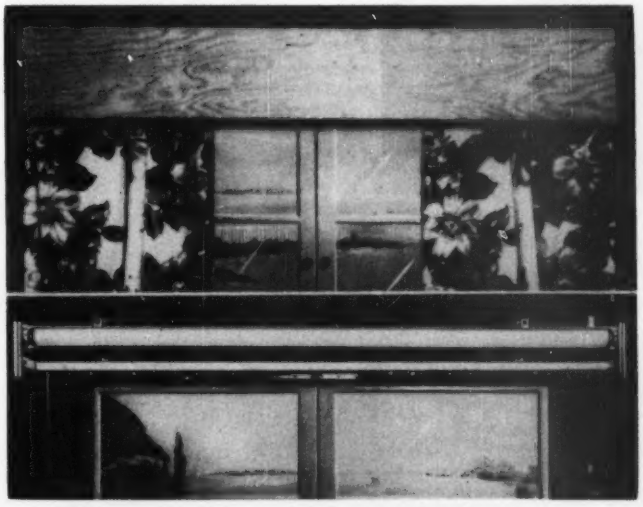
Gibson Announces Room Air Conditioner

New entry in the window air conditioner business is the Gibson Refrigerator Co, Greenville, Mich. Initial production will be concentrated on a ¾-hp model for rooms up to 400 sq ft, the size accounting for about two thirds of the present market. The price is not stated. Present distributors of Gibson appliances will handle the new product. Features are individual control of fresh and stale air, double cooler vents on top of unit, filter removable with one hand, and thermostatic control available as an accessory.

Sohmer Lumilite System

For Crosswalk Safety

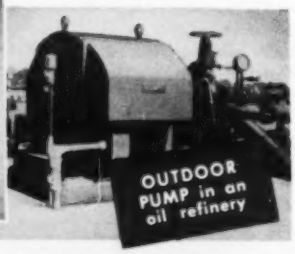
Not a single fatality since their installation began in 1947 has occurred at the crossings in Tacoma, Wash. where these overhead pedestrian lights are used. Three special globes are housed in a weatherproof, lightweight aluminum casing, illuminating a strip of street 16 ft wide and 60 ft long without blinding approaching traffic. At some intersections, the light is on constantly at night while at others it works with the traffic signals.

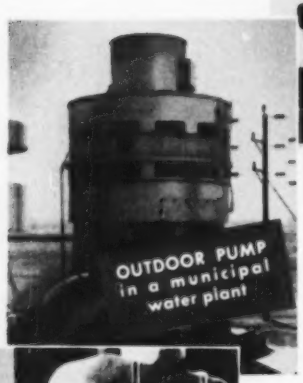


Buy—Don't Build—that Valance Lighting

The newest thing in home lighting, the illuminated valance, is now being offered as a packaged product. This one is manufactured complete, including 8-in. or 10-in. faceboard of ¼-in. plywood with unfinished sanded surface, traverse rod, radio and television interference filters, and a 10-ft cord with hand switch. The fixture is available in four lengths . . . 33, 48, 66, and 96 in. Each includes a single fluorescent lamp and comes equipped with adjustable wall-mounting brackets, faceboard-mounting brackets, and hangers. Maker is Joleco Corp, 2513 Baldwin St, St. Louis 6, Mo.

Put them outdoors...



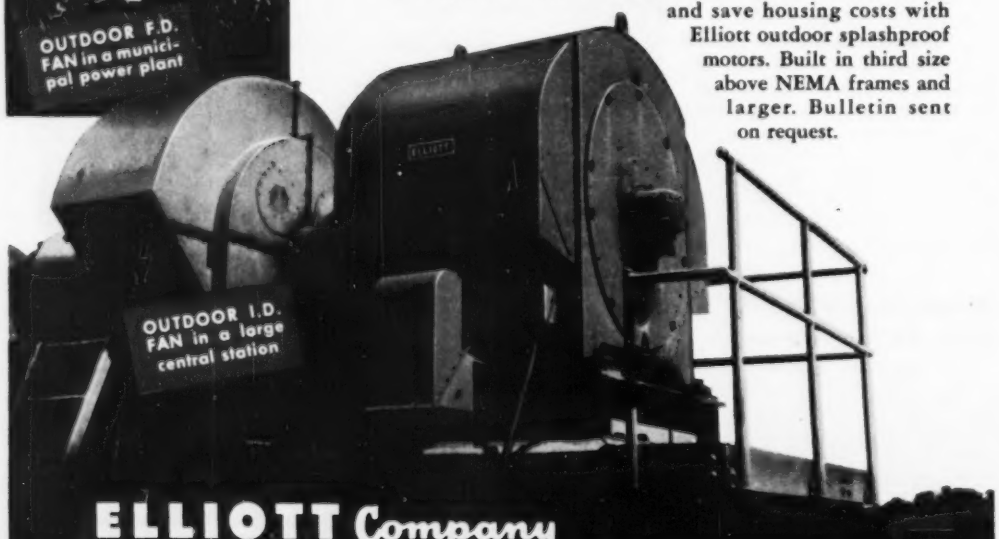


with ELLIOTT

OUTDOOR SPLASHPROOF MOTORS

These motors solve every difficulty of outdoor electric drive without the expense and complexity of totally-enclosed construction, of special vented foundation, or of protection from weather other than their own enclosure. Their "Fabri-Steel" construction permits of baffling design and air filtering which in hundreds of outdoor installations in all parts of the United States has proven immune to wind-driven snow, sleet, rain, fog, salt spray and dust-storm.

Put your motor drives where you want them, and save housing costs with Elliott outdoor splashproof motors. Built in third size above NEMA frames and larger. Bulletin sent on request.



ELLIOTT Company

Ridgway Division
RIDGWAY, PA.

R2-16

For Elliott Crocker-Wheeler industrial motors, 1-200 hp, write Elliott Company, Jeannette, Pa.
Plants at: JEANNETTE, PA. • RIDGWAY, PA. AMPERE, N. J. • SPRINGFIELD, O. • NEWARK, N. J.
DISTRICT OFFICES IN PRINCIPAL CITIES

Management Needs Incentive

. . . to produce best results, consultant tells EEI Industrial Relations Committee meeting in Cleveland

Successful incentive compensation plans at middle management levels and career advantages for engineering graduates in the utility industry were some of the topics discussed at the Industrial Relations Committee meeting at the 20th annual convention of the Edison Electric Institute in Cleveland.

These incentive plans are developed by a highly competitive top management that realizes the primary objective of all compensation is motivation, Arch Patton, McKinsey & Co, management consultants told the meeting.

Must Be Ruthless . . . This means, he said, that top management must be pretty "ruthless" in its judgment of executive performance to the extent that it is willing to sacrifice being a "good fellow" for getting effective results. The chief executive must be willing to give one vice president who made a real profit contribution a 50% bonus while cutting out entirely the bonus of another vice president whose contribution to profits was routine during the previous 12 months.

Patton declared that when directors of a company buy executive talent, it is not like buying coal from the lowest bidder. Some men are "premium executives." They can, and will, contribute a great deal more to company profits than other executives who also have an attractive personality, just as good an education, and an equally high I.Q. But they need motivation. They need the "carrot" of a reward to be held before them so that they will realize top management knows they are producing, he pointed out.

Dramatization Needed . . . With engineering graduates "pursued by opportunity" this year, electric companies must dramatize the career advantages they offer, if they are to attract their share of needed college graduates, a panel of four leading electric company executives told the meeting.

Participating in the discussion were Dr Adam S. Bennion, vice president, Utah Power & Light Co; L. R. Gaty, manager, engineering department, Philadelphia Electric Co; W. O. Turner, president, Louisiana Power & Light Co; and F. E. Verdin, director of personnel, Cleveland Electric Illuminating Co, who acted as moderator.

Turner pointed out that the electric industry is of the type where specialized college training can be utilized after a very short period of orientation. The college graduate's electric company job assignment invariably calls for him to put his specialized training to work much sooner than would be the case in many other industries, he said.

Money Only One Element . . . In a West Coast survey of universities, Dr Bennion reported that "money is only one element in the decisions which are limiting the number of prospective engineers who are available for jobs with utilities. The evidence is clear that, generally speaking, the utilities have been less dynamic in their recruiting on university campuses than have some other organizations," he declared.

Gaty emphasized the abundance of problems that have not been solved in the electric power industry, not only in the technical field, but in relations with government agencies and in many other fields. He said the utility engineer meets problems in civil, electrical, mechanical, and chemical engineering, his scope encompassing practically the entire engineering profession.

IBEW Accepts Wage Hike Offered by Westinghouse

Westinghouse Electric Corp and International Brotherhood of Electrical Workers, AFL, announced jointly that the union has accepted the cost-of-living wage increase offered recently by the company. (EW, May 12, p 38).

Robert D. Blasier, Westinghouse vice president in charge of industrial relations, and D. W. Tracy, IBEW president, said the increase would apply to employees covered by the National agreement between the company and the union at 19 plant locations.

For hourly paid employees, the increase ranges from 1 to 2½ ¢ an hour. For non-exempt salaried clerical employees the increase ranges from $1.75 to $4.35 per month.

The increase, fourth granted since September 1950, is retroactive to May 1. It already has been extended to about 15,000 employees who are not represented by unions and for a number of union-represented employees whose unions have accepted the offer.

LABOR BRIEFS

Pacific Gas & Electric Co isn't claiming any records but 54% of their 17,421 employees have a service record of at least five years and 22% claim 20 years or more . . . **Upper Peninsula Power Co.,** Houghton, Mich., has received Michigan Wage Stabilization Board approval to make a general wage increase of 4.1¢ per hour. Two cents of the increase is effective May 14, the other 2.1¢ last February. Basis for the decision was WSB Regulation 17 which permits approval of wage adjustments to correct bona fide interplant inequities.

Now that the engineer has assumed a leading role in industry, it is natural to expect that he will become more active in public affairs, Pres Jess H. Davis of Stevens Institute of Technology, told the graduates at the Institute's 80th annual commencement in Hoboken, N. J. recently. He said, "As we enter the era of atomic energy, the push-button factory and the automatic information machine, there is a need for firm, understanding leadership. I believe that leadership will fall logically to the engineer-statesman."

Dozens of opportunities with starting salaries that average $332 per month are being pressed upon engineering students at Illinois Institute of Technology who will be graduated this month, Earl C. Kubicek, Institute's placement director, has announced.

FINANCIAL

Utility Stocks Seen as Good Buy

Financial authority is particularly enthusiastic about investment opportunities south of Mason-Dixon line

Declaring that he was a "bull on utilities," Theron ("Ted") W. Locke, in charge of public utility research for Goodbody & Co, told a group of investment and banking authorities recently in Louisville, Ky. that "You can go practically anywhere South of the Mason-Dixon line and make money in utility stocks."

He qualified a "utility company" by saying that "I mean the electric concerns first, then the gas companies and those with gas and electricity and pipelines." For investment, "I prefer the electric and gas companies," he declared. Pipeline companies are too speculative, he said.

South One Frontier Left . . . The South is the one great frontier left, he said. "Its economy is being made over. It is developing new ways of life. Nowhere in the nation can you find greater growth and wealth," he added.

"It began in 1935 when the paper, then textile industries started an exodus to the South. Now many industries are doing it. You have only to look around Louisville to know what I am talking about. The South has diversified farming. There has been a complete economic revolution down here," he pointed out.

Good Yardstick . . . He rated a "good utility" as one having these qualifications:

1. Good regulation.
2. Balanced capital structure.
3. Good revenue diversification (not too much industry).
4. Willingness to expand.

On the question of regulation, he said, that "It is the beginning and end of utility company profits. Bad regulation runs dollars away from the industry. Capital is jittery. It jumps away at the first sign of trouble. Some managements seem to have a knack for getting along with regulating bodies."

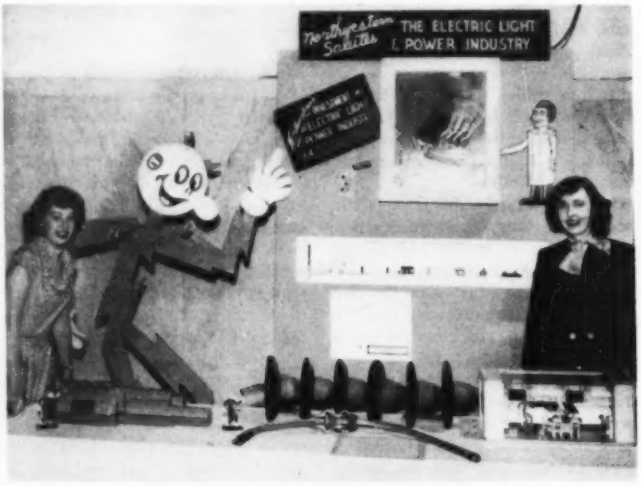
On the public power question, he discharged it this way: "A generator doesn't work any better for a government agency than it does for a private power company."

On electric rates, he produced an "EEI Pocketbook of Electric Industry Statistics" that showed that the average price for residential service was about 30% below those of ten years ago.

Electric Business to Double . . . He estimated that the electric business "is going to double in the next ten to fifteen years." He is of the opinion that electric companies would be using atomic power within 25 years.

He suggested companies must intensify their educational campaign to persuade home owners to improve their electric wiring to carry heavier appliance load. They must also see that new homes are adequately wired, to handle the most modern equipment.

At the present time, he said that he "liked" the common stock of the following companies: Middle South Utilities Inc, South Carolina Electric & Gas Co, Southern Co, Central & South West Corp, Texas Utilities Co, Wisconsin Electric Power Co, Kansas City Power & Light Co, Columbus & Southern Ohio Electric Co, and Long Island Lighting Co. He thought the last named was "the fastest growing utility in the U. S." He also thought that Rochester Gas & Electric Co was "very sound."



Light and Power Industry Exhibit

An attractive display of the electric light & power industry has been prepared by the Northwestern Mutual Life Insurance Co of Milwaukee in cooperation with the Wisconsin Electric Power Co. The display is designed to present graphically basic facts of the industry, in which Northwestern Mutual has investments totaling $432 million.

Placed in various locations in the block-square, eight-story home office building for a period of several weeks, the display is designed to give the 1,500 employees as well as its agents from all parts of the country, local and out of town policyholders and other visitors, an opportunity to view and study the exhibit.

The light and power industry exhibit is one of a series showing how the Northwestern Mutual's invested funds play an important part in industrial financing, and emphasizing the importance of life insurance company investments in the national economy.

Today in Utility Finance

YIELDS (%)

Quality	Bonds			Preferred Stocks			Common Stocks		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
1952									
June 12	**2.95**	**3.00**	**3.09**	**4.00**	**4.24**	**4.56**	**5.34**	**5.84**	**6.49**
June 5	2.95	3.00	3.10	4.00	4.21	4.56	5.37	5.86	6.49
1st 1952	2.95	2.99	3.13	4.11	4.29	4.66	5.35	6.03	6.47
4th 1951	3.02	3.07	3.21	4.32	4.50	4.91	5.42	6.18	6.84
3rd 1951	2.87	2.91	3.04	4.05	4.27	4.61	5.52	6.24	7.05
2nd 1951	3.02	3.11	3.23	4.11	4.37	4.68	5.75	6.38	7.37

Data: Reis & Chandler, Inc.

EARNINGS

	Period Months Ended		Net Income 1952	Net Income 1951	Earnings Per Common Share 1952	Earnings Per Common Share 1951
Alabama Power, consolidated	12	May	$11,641,508	$10,120,790	$	$
Arizona Public Service	12	April	2,439,293	2,080,889	0.95(a)	0.76(a)
El Paso Electric	12	April	1,472,467	1,388,007	1.84	1.73
Georgia Power	12	May	10,901,288	9,267,873	.....	.....
Gulf Power	12	May	1,466,005	1,107,649	.....	.....
Mississippi Power	12	May	1,930,743	1,665,843	.....	.....
Niagara Mohawk Power	12	May	23,273,597	19,256,546	1.97(b)	1.88(b)

Notes: (a) Based on 2,022,000 shares outstanding at April 30, 1952; (b) Based on 9,374,470 shares in 1952 and 7,490,266 shares in 1951.

FINANCING

Company and Description	Amount of Offering (000)	Offering Price	Yield to Public
WEEK OF JUNE 12-18			
Bonds			
Los Angeles, Calif., Department of Water & Power—electric rev bonds 1953-1992	$17,000	various	1.00-2.50%
Los Angeles, Calif. Department of Water & Power—electric plant ref rev bonds 1964-1988	5,775	various	1.75-2.45
Kentucky Utilities—1st mtg 3¼% 1982	12,000	102.82%	3.35
Public Service Electric & Gas—3⅛% debentures 1972	40,000	100.799	3.32
American Gas & Electric—3⅜% debentures 1977	20,000	100.75	3.33
Preferred Stock			
Public Service Co of Indiana—800,000 sh 4.32% $25 par cum...	$20,000	$25.00	4.32%
Common Stock			
American Gas & Electric—170,000 sh	$10,243	$60.25	4.98%
Southern Co—1,004,510 sh (being offered to commonholders on 1-for-16 basis, record June 19 to expire July 10)	12,808	12.75	6.27
WEEK OF JUNE 19-25			
Bonds			
Central Louisiana Electric—1st mtg 1982	$4,000	.....	.....
Boston Edison—1st mtg 1982	15,000	.....	.....
Gulf Power—1st mtg 1982	7,000	.....	.....
Public Service Co of Indiana—1st mtg 1982	25,000	.....	.....
New England Power—1st mtg 1982	5,000	.....	.....
Preferred Stock			
Public Service Co of New Hampshire—50,000 sh $100 par cum..	$5,000	.....	.....
Common Stock			
Northern States Power (Minn.)—1,108,966 sh (being offered to commonholders on 1-for-10 basis (a), record June 5 to expire June 23)	$11,644	$10.50	6.67%
Empire District Electric—150,000 sh (b)	.....	.....	.....
SCHEDULED FOR JULY			
Bonds			**Bid Date**
Georgia Power—1st mtg 1982	$20,000	.....	July 8
Commonwealth Edison—1st mtg 1982	40,000	.....	July 15
Debentures			
Houston Lighting & Power—convertible debs 3¼% 1967 (being offered initially to commonholders of record June 17 to expire July 7 on basis of $50 principal amount of debentures for each 16⅔ shares held; debentures are to be converted initially into common at $17½ per share)	$14,266	$100.00	3.25%
Preferred Stock			
Gulf States Utilities—50,000 sh $100 par	$5,000	.....	.....
Common Stock			
Pacific Gas & Electric—2,271,300 sh (being offered to stockholders on 1-for-5 basis, record June 10 to expire July 2)	$68,139	$30.00	6.67%
Public Service Co of New Mexico—173,136 sh (being offered commonholders on 1-for-7 basis, record June 17 to expire July 8)	1,385	8.00	7.00
General Public Utilities—531,949 sh (to be offered commonholders on 1-for-15 basis, record July 1 to expire July 23; fractional shares will not be issued but holders will be reimbursed in cash; additional stock to carry 35¢ dividend payable Aug. 15)	.....	.....	.....
Florida Power Corp—309,300 sh (to be offered commonholders on 1-for-5 basis, record about July 1 to expire July 16)	.....	.....	.....

Notes—(a) Stockholders allowed oversubscription privileges; and (b) First Boston Corp and G. H. Walker & Co, underwriters.

Empire District Electric Gets Hike in 4 States

Empire District Electric Co has just advised that, on Jan. 22, 1952, the company applied to regulatory commissions of Missouri, Kansas, Oklahoma, and Arkansas for permission to increase rates.

On Mar. 31 and April 7, respectively, hearings were held in Missouri and Kansas. On May 15, commissions of Missouri and Kansas granted the company permission to file uniform rates designed to produce during test period of twelve months ended Sept. 30, 1951, increase in total company gross electric operating revenue of $735,837, in lieu of company's request for $800,475.

Other Commissions Approve . . . On June 4, Arkansas commission approved rate schedules uniform with those approved in Missouri and Kansas. Corporation Commission of Oklahoma, with which had been filed rates uniform with those approved in Missouri, Kansas and Arkansas, announced on May 26, that such rates had been found to be in compliance with its General Order No. 2112 and would be made effective July 1, 1952. New rates will increase monthly billings for residential service approximately 12%.

FINANCIAL BRIEFS

U. S. District Court at Portland, Me., has set hearings for July 17 on distribution plan of American Power & Light Co to dispose of its subsidiary, Washington Water Power Co (EW, June 16, p 103).

Missouri Utilities Co has asked Public Service Commission approval to sell 18,280 additional common shares.

Stockholder Subscriptions: Virginia Electric & Power Co stockholders subscribed to 649,539 common shares of 494,642 shares offered at $21.75 a share on 1-for-10 basis with an oversubscription privilege.

Citizens of Dakota City, Iowa, have voted 140-to-6 to grant Iowa Public Service a renewal of its electric franchise . . . **Stonewall, Okla., citizens** have voted 256-to-0 to renew 25-year power franchise with Oklahoma Gas & Electric Co.

DOWN IT GOES New 500-kva G-E standardized network transformer being lowered into vault on Snow Street, Providence, Rhode Island. Vault previously housed a standardized 300-kva unit.

Load growth in Providence easily met by network system

New 500-kva G-E network transformer nearly doubles the capacity at this location as it replaces a 300-kva unit . . . using the same vault and cable connections.

In city after city secondary networks continue to demonstrate their flexibility and economy for meeting today's load growth—on an orderly, step-by-step basis—without any rearrangement of secondaries or service entrances.

Providence, Rhode Island, provides a recent example. Load in the business district around Snow Street was climbing, due to increasing use of air conditioning, higher levels of illumination and general business expansion. Narragansett Electric, the utility, foresaw the need for additional capacity and simply ordered a new 500-kva General Electric standardized network transformer.

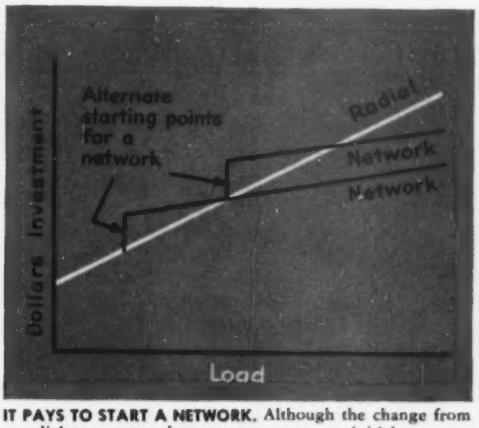
TRANSFORMER EASILY INSTALLED When the new unit arrived, it was placed in storage until actually needed. Then, utility crewmen removed the existing 300-kva unit and lowered the new 500-kva unit into the vault. It was tapped in on the secondary grid without interrupting service.

And that's all there was to it! Since both units were standard, no trouble was encountered in replacing the 300-kva unit with a 500-kva unit—the same vault and even the same cable connections were used!

HELP FOR YOUR SYSTEM If you're struggling to accommodate new loads by perpetuating a radial system and your load density has risen to approximately 10,000 to 15,000 kva per square mile, it may be time for you to investigate the flexibility and economy of a secondary network.

For help in solving your network problems and for complete information on the advantages of G-E standardized network units, see your local G-E Apparatus sales representative. Or write for Bulletins GEA-5024 and GEA-2017. General Electric Company, Schenectady 5, New York. 402-127

HELD IN STORAGE Narragansett Electric, Providence, Rhode Island, foresaw need for additional capacity and ordered new 500-kva unit which was held in storage until needed. With the new unit on hand, utility crewmen were able to schedule its installation well in advance.



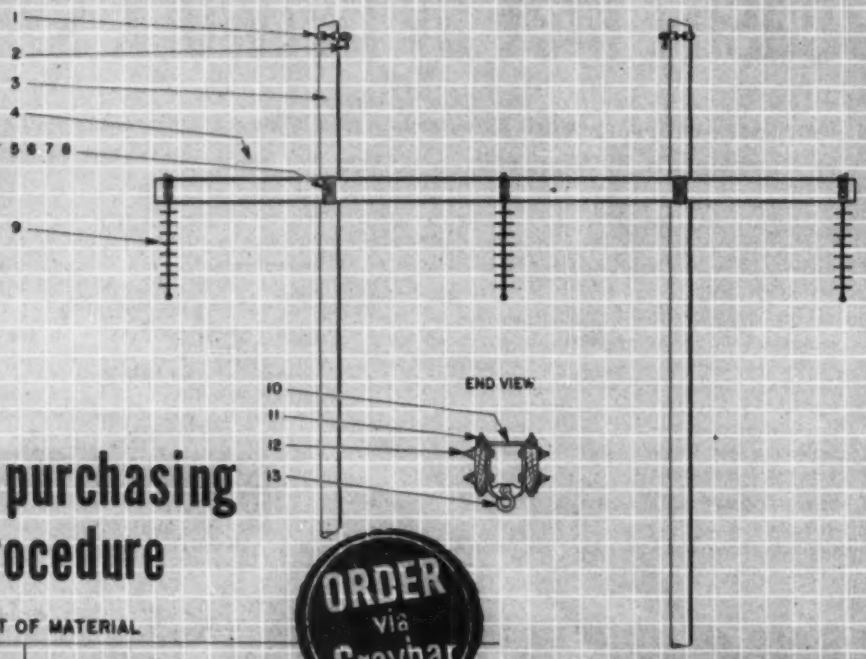
IT PAYS TO START A NETWORK. Although the change from a radial to a network system means some initial expense, future increases in capacity require less investment with a network. And with a growing load, the sooner the network is started, the lower the ultimate cost.

GENERAL ELECTRIC

ACCEPTED STANDARDS

...in construction practice

TYPE NO. 806- H-FRAME STRUCTURE— DOUBLE PLANK CROSSARM WITH STEEL SPACERS



...AND purchasing procedure

ORDER via Graybar

LIST OF MATERIAL

DRG. REF #	QUANTITY	DESCRIPTION
1	2	POLE BAND W/SHACKLE
2	2	LINK AND STATIC WIRE SUSPENSION CLAMP
3	2	POLE
4	2	CROSSARM
5	2	STUD BOLT 7/8" W/2 SQ. NUTS
6	4	MF LOCKNUT 7/8"
7	4	FLAT GAIN PLATE
8	4	RIBBED TIE PLATE
9	AS REQ'D	SUSPENSION INSULATORS AND FITTINGS
10	3	SPACER FITTING
11	6	MACHINE BOLT 1/2" W/SQ NUT, 2" SQ. X 1/8" (9/16" HOLE), WASHER, 1/2" SPRING LOCK WASHER, 1/2" MF LOCKNUT
12	12	MACHINE BOLT 5/8" W/SQ. NUT, 2 1/4" SQ. X 3/16" (11/16" HOLE) WASHER, 5/8" SPRING LOCK WASHER, 5/8" MF LOCKNUT
13	3	TWISTED SHACKLE

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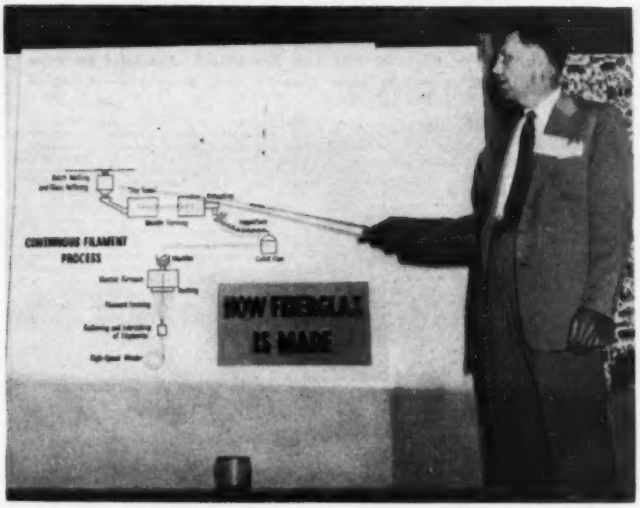
GRAYBAR Everything Electrical

IN OVER 100 PRINCIPAL CITIES

One of a series of advertisements high-lighting the economies of standardization



GLASS FIBER manufacturing process is explained by F. W. Boeker, of Owens-Corning Fiberglas Corp, to more than 80 industry engineers at corporation's first annual apparatus conference

Holds 1st Apparatus Parley

The first annual apparatus conference sponsored by Owens-Corning Fiberglas Corp was held June 9-10 at Shawnee-On-Delaware, Pa., and was attended by more than 80 engineers from electrical apparatus and textile manufacturers and utilities. At the conference industry guest engineers and Fiberglas personnel discussed how Fiberglas materials can serve and are serving the electrical industry.

Investment Skyrockets . . . The "sky's the limit" for silicones and Class H Fiberglas insulation was the opinion expressed by Dr Melvin L. Manning, Pennsylvania Transformer Co. He said that plant investment to make these materials has skyrocketed since 1949 to an estimated $35 million by 1954. He added that a 2,000-kva sealed transformer requires 1,100 lb of thermosetting and formable Fiberglas silicone laminate. Dr Manning said that by such demand the price of laminate has been reduced to $5.00 per lb, or a reduction in cost of one-third within a few months.

It was not until the entry of glass fibers into the insulation picture that real progress in electrical rotating machinery design occured, according to H. R. Meyer, Westinghouse Electric Corp. He said that this opened up a whole new world of possibilities. Coils insulated with these new completely inorganic materials will withstand temperatures up to 250 C whereas those (for motors) insulated with all organic materials are good for only approximately 105 C.

Boosts Power . . . J. A. Coffman, General Electric Co, stated that traction motors are packed with more power by using Fiberglas in place of asbestos, giving a thinner, more uniform insulation and a corresponding increase in conductor size. He said higher operating temperatures are possible by substituting Fiberglas for cotton and paper. Today, cotton tape accounts for only 10% of GE requirements (mostly for old designs) and asbestos tape is completely out of the picture. Glass tape is used for 90% of their applications.

According to G. E. McIntyre, Dow-Corning Corp, one welding transformer manufacturer has built several water-cooled resistance welding transformers using semi-cured silicone rubber tape as primary coil insulation with excellent result. Transformers are built in a regular 35-kva frame and are delivering 75 kva. They have allowed a total hot spot temperature of 200 C on these units and find that the high thermal conductivity of the tape is of major importance in allowing the higher kva ratings.

The silicone resin varnishes bring to the electrical industry products having thermal endurance far superior to organic varnishes, in the opinion of B. F. McNamara, Insulation Manufacturers Corp. He said that the product of time and temperature is considerably longer for the proper curing of a silicone resin than for any organic varnish.

Copper Products

. . . price ceilings raised by 3.84¢ a lb to help users

The government has authorized price boosts averaging 3.84¢ a lb for brass mill and wire mill products. The decision was made after week-long conferences between representatives of brass mill and wire mill producers and officials of the National Production Authority and the Office of Price Stabilization. The hikes will go into effect July 1 and remain in force until the end of September.

This comes after five weeks of confusion on copper prices. It all began May 8, when Chile—the source of one-third of U. S. copper supplies—broke an agreement to sell 80% of its copper output to the United States at a fixed price of 27½¢ a lb. The Chileans were getting at least 6¢ a lb more for the remainder of their production on the open market. They wanted the United States to pay more, too. In the meantime, the ceiling price on domestic copper in the United States was 24½¢.

Two weeks of sweating-it-out followed, during which Chile banned copper shipments to this country. Then, on May 22, acting Defense Mobilizer John R. Steelman took action to get Chilean copper flowing in again. He announced that he would permit boosts in the ceiling prices of goods manufactured from high-cost foreign copper. This would permit copper importers to pay the world market price for Chilean copper, he said. Then, the 3.84¢ average price hike for brass mill and wire mill products was authorized.

The 3.84¢ increase in copper products is based on an estimated cost of foreign copper of 36½¢, delivered. The foreign price is 12¢ higher than the domestic ceiling price of 24½¢. Users will be permitted to pass through 80% of the 12¢ (which is 9.60¢; 40%, foreign entitlement, of 9.60¢ is 3.84¢) in increased prices for their products.

To spread the costs evenly among all refined copper consumers, NPA's monthly allocations will be 60% domestic copper, 40% foreign. In July, this will be a direct allocation of 80,000 tons of domestic copper and authority to buy 53,000 tons of high-priced foreign copper. (Refined copper allocations for June totalled 104,899 from all sources.)

It's questionable whether brass mills and wire mills will take up all entitlements to foreign copper. But whether they buy Chile's 36½¢ copper or not, they'll be able to boost prices of their own products.

Now, what happens to manufacturers who use semi-finished brass mill and wire mill products—costing 3.84¢ a lb more now than before—to make finished goods? OPS hasn't said whether they'll be able to pass on their new costs in increased prices for their end-products.

When the 90-day period ends, the OPS will again review the world price situation and if in the interval the world price has dropped below 36½¢, a downward revision in ceiling prices will probably be ordered.

MANUFACTURING BRIEFS

Burndy Engineering Co, Inc, Norwalk, Conn., has received a certificate of special recognition from the Economic Cooperation Administration for its role in supporting mutual American-European efforts to strengthen the free nations against communism.

General Electric Co recently dedicated its new $6-million electronic tube plant at Anniston, Ala. The plant, which has more than 160,000 sq ft of floor space, currently employs about 300 and is expected to employ an estimated 2,000 persons within a year.

Rural Transformer & Equipment Co, Milwaukee, Wis., has changed its name to RT&E Co. The firm has made no changes in ownership, executives, or staff.

NEW ELECTRICAL CONSTRUCTION

A weekly selection of U. S. electrical construction projects announced by private and government utility systems involving more than $70,000. Also listed are major industrial and construction jobs where electrical work is indicated or implied

UTILITIES

Proposed Construction

Calif., Redondo Beach — Southern California Edison Co., 601 W. 5 St., Los Angeles, steam generating plant $44,000,000. Stone & Webster, 601 W. 5 St., Los Angeles, consult. engrs.

Calif., San Leandro—Alameda Co., Court House, Oakland, power house and shop bldg. at Fairmount Hospital. $800,000. Will G. Corlett, 1401 Bank of American Bldg., Oakland, archt.

Colorado—Bureau Reclamation, Dpt. Interior, Fort Collins, conversion of Beaver Creek-Wray 69-kv transmission to 115-kv. Colorado Big Thompson Proj. Spec. 704C-262. L. N. McClellan, Bldg. 1A, Denver Federal Center, Denver, ch. engr.

Conn., New Haven—P. Wks. Office, Third Naval Dist., 90 Church St., New York, 7, N. Y., radar platforms at Naval Reserve Training Center, NOY 73141, Spec. 34322.

Fla., Green Cove Springs — Dpt. Navy, Officer in Charge of Construction, Box 365, Naval Base, S. C., electrical system alterations at U. S. Naval Station, NOY 72935. Plans deposit $10.

Ill., Chicago—City, City Hall, extend West Side Subway from Chicago River to Halsted thence on surface in median strip of Congress St. Superhighway to 5400 West. $25,000,000. Bonds voted. Dpt. Subways & Super Highways, 20 N. Wacker Dr., Chicago, Zone 6, consult engr.

La., Plaquemine — Town, concrete work incl. foundations for engine generating unit, auxiliaries. Plans deposit $10. Barnard & Burk, 1023 Nicholson Dr., Baton Rouge, engrs.

Md., Bethesda—Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C., modifications, addns. to 13,200 volt metal clad switchgear and associated constr. National Naval Medical Center, NOY 71746, Spec. 23149.

Md., Glenn Dale—Dist. of Columbia, Director of Constr., District Bldg., Wash., D. C., pump house addn. for high tension electrical sys., Glenn Dale Sanatorium.

Neb., Fort Crook—U. S. Eng., 1709 Jackson St., Omaha, power and communication facilities for global communications at Offcut Air Force Base, Inv. 52-144.

N. Y., Potsdam—Niagara Mohawk Power Corp., 250 Park Ave., New York, Zone 17, hydroelectric generating plants at Five Falls on Raquette River near here, $4,000,000; at Blake Falls, on Raquette River, near here, $4,000,000; at Rainbow Falls on Raquette River, near here, $4,000,000; at Stark Falls, on Raquette River, near here, $4,000,000.

Oregon—Bonneville Power Admin., 827 N.E. Oregon St., Portland, construct Port Orford Sub-station, Curry Co. Inv. 6521. Plans deposit $25.

Pennsylvania—Dpt. Property & Supplies, 319 N. Front St., Harrisburg, electrical distr. sys. at Raccoon Creek State Park, Beaver Co. Plans deposit $10. Extended date.

R. I., Newport—P. Wks. Dpt., Naval Base, Power Plant Bldg. 71, structural and mechanical repairs, NOY 72034, Spec. 32485. Plans deposit $10.

South Dakota—Bureau Reclamation, Dpt. Interior, Billings, Mont., one 2,000 kva. transformer with 3 lightning arresters, one 34,500-volt power circuit breaker, one horn-gap switch, 9 disconnecting switches, 3 disconnecting fuses, 2 current and 2 potential transformers, Missouri River Basin Proj., Winner, Spec. 600 S-96.

South Dakota—U. S. Eng., 1709 Jackson St., Omaha, Neb. (a) furnish 8 disconnect switches for 220 kv, and 3 disconnect switches for 115 kv switchyard systems, with operating mechanism accessories, tools and spare parts, (B) furnish 3 lightning arresters for 230 kv and 3 lightning arresters for 115 kv station service, complete with mounting base, bracing bracket, insulators and line and ground terminal for Oahe Reservoir proj. near Pierre. Spec. CIVENG 25-066-2-144.

Washington—Grant Co. Public Utility District, Ephrata, hydro electric dam 550 ft. high on Columbia River Priest Rapids, Grant Co. $250,000,000.

Wash., Ellensburg—Pictsweet Frozen Foods, Mount Vernon, food processing plant addn. $150,000.

Wash., Olympia—Puget Sound Power & Light Co., Stuart Bldg., Seattle, Zone 1, expanding sub-station at Port of Olympia, $100,000.

Low Bidders & Contracts Awarded

Conn., Middletown—Stone & Webster Corp., 49 Federal St., Boston, Mass., CA, $14,000,000, design and construct power plant, in Laurel Section between River Rd. and Connecticut River. Hartford Electric Light Co., 266 Pearl St., Hartford, Conn.

Oregon—Newport News Shipbuilding & Dry Dock Co., Newport News, Va., CA, $477,105, one 20,700 hp. hydraulic turbine for Dexter re-regulating reservoir, Lookout Point Dam, CIVENG 35-026-52-172. Lane Co. U. S. Eng., Pittock Block, Portland, Ore. Bids Apr. 10, awarded May 28.

Pa., Sharon—Westinghouse Electric Co., Maloney Bldg., Pittsburgh, Pa., Separate Contracts, $9,000,000, 1 story 210x1,000 ft. brick transformer plant addn., steel deck & roof constr. J. Gordon Turnbull, Inc., 2630 Chester St. N. E., Cleveland, O., archt.

S. C., Sumter—Boyle Constr. Co., Sumter, S. C., LB $118,331, steam generating plant and distr. sys., No. 38-081-52-63, Shaw Air Force Base. U. S. Eng., Custom House, Charleston, S. C. Bids June 4.

Tenn., Memphis—Turner Constr. Co., Col. Mutual Tower Bldg., Memphis, Tenn., CA. Approx. $2,000,000. Boiler Plant. Quaker Oats Co., 1524 Ragan Ave., Memphis, Tenn. Awarded June 6.

Tex., Mineral Wells—Cuff Electric Co., Waco, Tex., LB, $74,135, est. $78,-393 electric utility lines; Leslie Miller, Inc., 2914 E. Rosedale St., Fort Worth, Tex., LB, $112,926, est. $107,213, utility lines at Wolters Air Force Base. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids June 5.

Washington—Eastern Electric Sales Co., 5495 Pennsgrove St., Phila., Pa., LB, $75,735, insulated wire and conductor cable for Chief Joseph Dam Powerhouse. Inv. 52-151. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash.

INDUSTRIAL, COMMERCIAL & PUBLIC BUILDINGS

Proposed Construction

Mo., Jennings (St. Louis 20, P.O.)—Northland Shopping Center, Inc., G. J. Nooney, pres., Shell Bldg., 1221 Locust St., St. Louis, Zone 3, shopping center, incl. 9 buildings of various sizes totaling 1,000,000 sq. ft. floor space, parking facilities. W. Florissant Ave. and Locas and Hunt Rds. $10,000,000.

N. C., Fort Bragg—U. S. Eng., 308 Customhouse, Wilmington, 500-bed hospital. $7,216,000.

Tex., Karnack (near Marshall)—U. S. Eng., First and Douglas Sts. N.W., Wash., D. C., munitions plant. $30,000,000.

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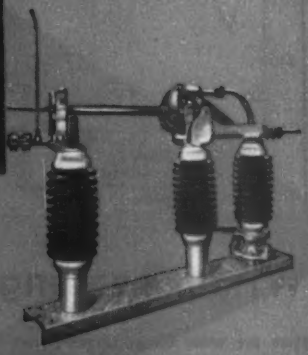

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For additional information, write for bulletin No. 21-I.

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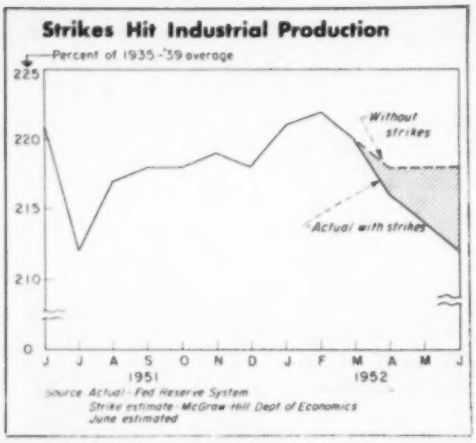
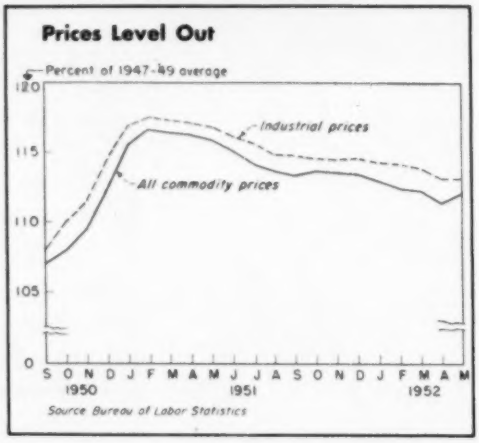
ELECTRICAL BUSINESS OUTLOOK





When Reading Business Indices, Remember—

Here are some things to remember when you read the business indicators these days:

1. Strikes are distorting the business picture—making production and trade figures seem worse than they really are. Steel and oil strikes cut down the official index of industrial production (above). And as these industries are big power consumers, power sales were hit in the areas affected.

Retail trade also has suffered from strikes. Workers haven't been buying in areas where plants have been on strike or threatened by strikes.

Actually production and trade have been on a pretty even keel for a good many months if it weren't for the strike distortion. But there are likely to be more strikes just ahead—in coal, for example—and that may postpone the time when business indicators will show a rise.

2. The weather is an important factor in summer business. It's vacation time. And that means plant shutdowns—probably more than usual this year because of high inventories. It's also usually a slow period for retail stores and the distributors supplying them.

3. Construction business booms in the summer. It's not directly included in the reports on industrial production. And even special reports on construction activity sometimes underestimate how much is really going on. This is a big construction year—a strong prop under the economy these next few months.

4. Demand for industrial products is showing terrific variations from industry to industry. Here are some examples:

Textile demand is still very slow. But the trade looks for improvement within a month or two.

Shoes and leather seem to be in the first stage of a pick-up in new business.

Autos are in their heavy demand season. But it looks like a below normal year.

Electric appliances generally are still moving slowly.

Heavy machinery industries are still going great guns. But new orders and backlogs have been dropping, indicating a decline in output before the end of the year—probably very slight at first, but accelerating in 1953.

Oil refineries will have to run at full tilt the rest of this year and early 1953 to make up strike losses.

Steel output will jump, too, to regain lost tonnage. But the inventory situation is much heavier in steel than in oil. So peak operations probably won't last beyond the third quarter.

Chemicals generally still are in very strong demand. But weak spots are showing up here and there.

Pulp and paper industry is running below capacity and apparently headed down a bit further in the months ahead.

Out of this conflicting situation—some lines stronger, others weaker—has come the apparent stability in overall production that shows up on the chart above. But stability isn't likely in an area where one industry with a strong trend predominates.

We're getting stability in prices too now, after a big swing up and down during the past year. Some of the distress selling in soft goods is over. And that's helped firm up the industrial price average.

Most analysts look for a sideways trend in industrial prices over the next six months. They'll firm up more in some of the lines where demand is turning strong. But as noted above, there are enough lines going the other way to keep the overall average stable. Key item is metal prices (see a coming EBO).

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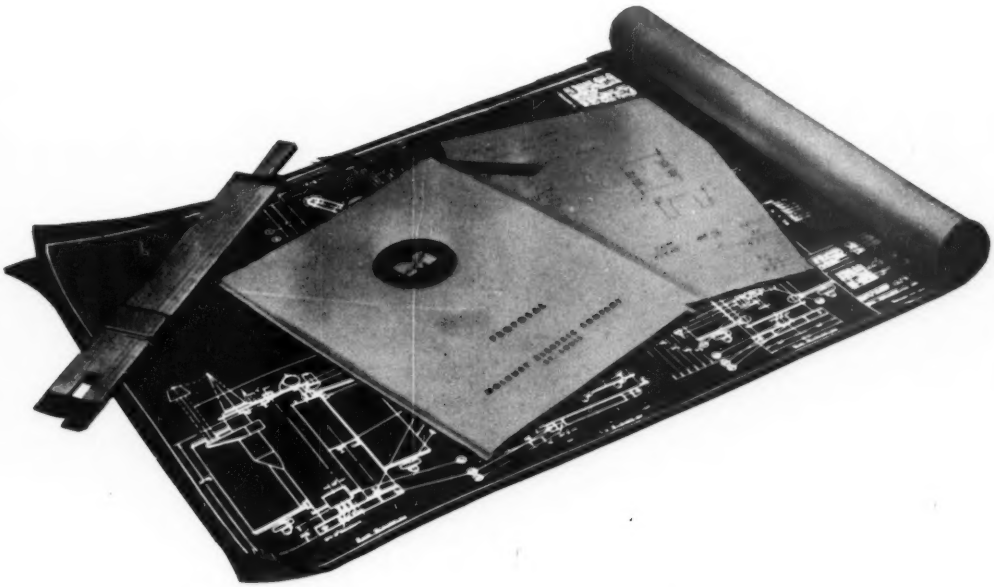

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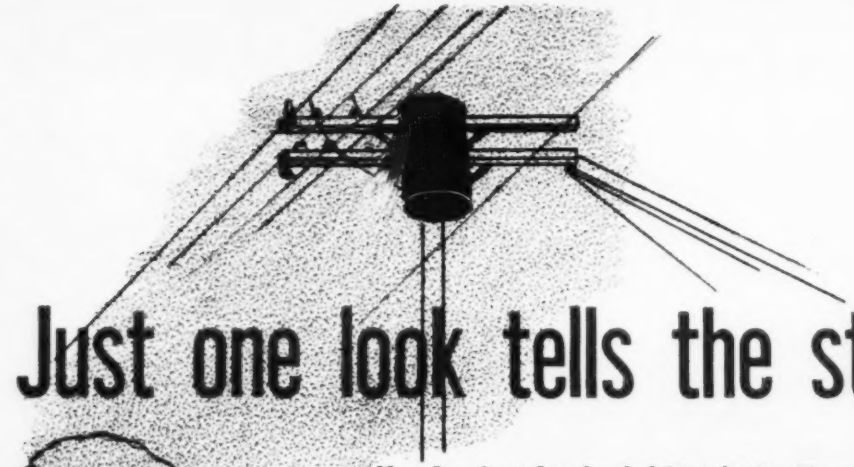

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